The Impact of the Covid-19 Pandemic on the Feasibility of the Laying Hens Business in Sumberejo Village, Blitar Regency, East Java Province, Indonesia

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Abstract

This research was conducted to determine the impact of Covid-19 on the feasibility of laying hens in Sumberjo Village. This research was conducted using a descriptive quantitative approach. Quantitative approach is research that uses data in the form of numbers. The description is carried out from the results of statistical analysis of the data collected during the study. Respondents in this study were determined by purposive sampling on laying hens in Sumberjo Village. The number of respondents used in this study was calculated by the slovin formula. Data collection in this study was carried out through observation and surveys using questionnaires. The results showed that the total cost of each 5000 laying hens was Rp. 120.5600.00/month; total revenue of Rp. 109,411,764.71/month; income of Rp. -11,148,235.29 and the R/C value is 0.91. The results of this study narrowed down to one conclusion that the Covid-19 pandemic had an impact on the low feasibility of producing chicken business.

Key words: Covid-19 pandemic, feasibility of livestock business, laying hens

Introduction

Corona virus is a type of virus that attacks the respiratory tract in animals and humans. The corona virus began to be widely discussed at the end of 2019 after it was reported that an infection from this virus was spreading rapidly in the city of Wuhan, China. Corona virus disease 2019 or what is known as Covid-19 has spread widely not only in Wuhan but almost all over the world and has become a global pandemic (Suryana *et al.*, 2020). In the third week of April 2020 it was reported that 1.4 million people had been confirmed positive for COVID-19. The death toll from Covid-19 infection reached 170,000 people and 640,000 patients were reported to be healthy (Taufik and Ayuningtyas, 2020).

The spread of the Covid-19 pandemic in many countries, including Indonesia, has caused a slowdown in economic growth. The World Trade Organization (WTO) predicts the possibility of a 32% decline in world trade globally during the Covid-19 pandemic (Sugiri, 2020).

Indonesia, losses due to this pandemic for 1.5 months in Greater Jakarta and Greater Bandung are estimated to reach Rp 517 trillion (Hadiwardoyo, 2020). During the Covid-19 pandemic, it was reported that the poverty rate in Blitar Regency had increased. The poor population in Blitar Regency in 2021 was recorded at 9.65% or 112.62 thousand people (BPS Kabupaten Blitar, 2021).

Blitar Regency is one of the regencies in East Java Province where 48.24% of the total population works in agriculture which consists of agriculture, livestock, fisheries and forestry subsectors (Haryuni, 2018). Blitar Regency is one of the biggest suppliers of chicken eggs. In 2021, the population of laying hens in Blitar Regency reached 20,051,400 heads (BPS Kabupaten Blitar, 2022). In order to determine the impact of the Covid-19 pandemic on the laying hens business in Blitar Regency, it is necessary to conduct research to determine the feasibility of laying hens business during the Covid-19 pandemic.

Material and Method

The implementation of this research is in August - September 2021. The research location is in Sumberjo Village, Kademangan District, Blitar Regency, East Java, Indonesia. This research was conducted using a descriptive quantitative approach. Quantitative approach is research that uses data in the form of numbers. The description is carried out from the results of statistical analysis of the data collected during the study (Hasan *et al.*, 2021).

Respondent

Respondents in this study were determined by purposive sampling on laying hens in Sumberjo Village. The number of respondents used in this study was calculated by the slovin formula (Velina and Rizky, 2022). Slovin formula to determine the number of respondents as below.

$$n = \frac{N}{1 + N\,(e)^2}$$

n = Number of samples
N = Number of population sampled
e = Allowance rate (10% for population > 1500; 15% for population 1000 – 1500 and 20% for population < 1000)

Data Types and Sources

This study uses quantitative data. Quantitative data in this study are numbers obtained through questionnaires. Primary data was obtained from questionnaires that were filled in directly by farmers in Sumberjo Village and secondary data was obtained from previous research that was in accordance with the theme of this research and from related agencies.

Data collection

Data collection in this study was carried out through observation and surveys using questionnaires. Observations were carried out directly on farms in Sumberjo Village, Kademangan District, Blitar Regency. This observation is done by recording and documenting certain events or events that are used to complete the research data.

Variables
Production cost analysis

Production costs are calculated by adding up all expenses during the production period.

There are 2 types of production costs (Haryuni, 2018).
a. Fixed cost

Production costs whose amount is not affected by production capacity are calculated as fixed costs. Costs included in this category of fixed costs include salaries, rent, taxes, depreciation of equipment. Calculation of fixed costs using the formula below.

$$\mathbf{TFC = FC\,x\,n}$$

TFC = Total fixed cost
TC = Fixed cost
n   = Number of inputs

Depreciation costs include depreciation of equipment, stables, warehouse, taxes and interest. Calculation of depreciation costs using the formula below.

$$\mathbf{Depreciation} = \frac{Pp - Sp}{T}$$

Pp = Purchase price
Ps = Selling price
T = Length of use (years)
b. Variable cost

Production costs whose amount depends on production capacity are included in the variable cost category. Variable costs include feed, vitamins, medicines for chickens etc. variable cost calculation as follows:

$$\mathbf{TVC = VC\,x\,n}$$

TVC = Total variable cost
VC = Variable cost
n   = Number of units

The total cost of production can be calculated by adding up the fixed cost and variable cost

$$\mathbf{TC = TFC + TVC}$$

TC = Total cost
TFC = Total fixed cost
TVC = Total variable cost

Break event Point (BEP)

Break Even Point is a position where the company does not make a profit or loss (Haryuni, 2018). The Break event Point (BEP) value can be calculated like the formula below (Winowoda *et al.*, 2020).

$$BEP\ (price) = \frac{TFC}{1 - \dfrac{TVC}{sales\ units}}$$

Table 1. Economic analysis of laying hens (calculation for 5000 laying hens/month)

Description	Value (rupiah)	Contribution (%)
A. Fix Cost (FC)		
Labor salary		
2 workers @ 1,250,000/month	2,500,000	2.074
Cost of depreciation		
Laying hens depreciation	3,000	0.002
Cage	50,000	0.041
Equipment	15,000	0.012
Total Fixed Cost	**2,568,000**	
B. Variabel Cost (VC)		
Feed cost	117,492,000.00	97.455
Medicines and vaccines	200,000.00	0.166
Electricity cost	300,000.00	0.249
Total Variable Cost (TVC)	**117,992,000.00**	**100.000**
Total Cost (TC)	**120,560,000.00**	
C. Revenue	**109,411,764.71**	
D. Income	**-11,148,235.29**	
E. Break Event Point (BEP)	**16,715.53**	
F. Revenue Cost Ratio (R/C)	**0.91**	

$$BEP \ (unit) = \frac{TFC}{Harga \ jual - VC}$$

BEP = Break event point
TFC = Total fixed cost
TVC = Total variabel cost

Revenue analysis

Revenue is the result of multiplying the selling price of the product with the size of the unit. Revenue can be calculated by the following formula:

$$TR = Pq + Q$$

TR = Total revenue
Pq = Unit price
Q = Total production

Income analysis

Income is the profit earned from a business. Profit is the difference between revenue and all costs incurred in a certain production period. The higher the business income, the more profitable the business. The amount of income can be calculated as follows.

$$Income = TR - TC$$

TR = Total revenue
TC = Total cost

Revenue cost Ratio (R/C) analysis

R/C is the ratio between revenue and all costs required during the production process. R/C value > 1 means the business is profitable. R/C value <1 indicates that the business is not feasible to continue. The greater the R/C value, the greater the level of profit.

Results and Discussion

The economic analysis of the impact of the Covid-19 pandemic on the feasibility of laying hens in Sumberjo Village, Kademangan District, Blitar Regency, East Java is presented in Table 1.

Respondents in this study on average had a long experience in raising laying hens. Based on the results of statistical analysis, it was found that 5.71% of respondents had started their business < 5 years; 14.29% for 5-10 years; 28.57% for 10-15 years; 25.71% for 15-20 years and 25.71% for > 20 year show in Figure 1.
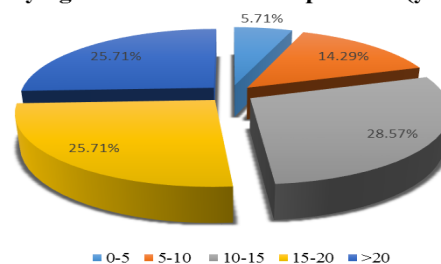

Figure 1. Laying chicken business experience
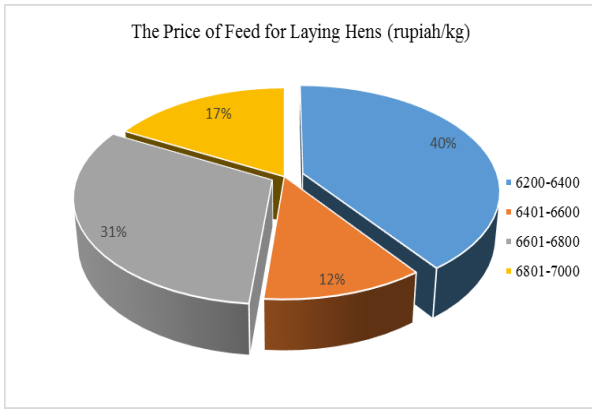
Figure 2. Prices of feed at laying hens farms in Sumberjo village
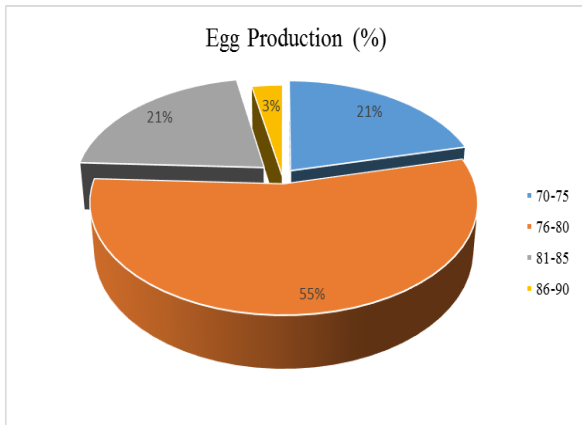

Figure 3. Egg production on farms in Sumberjo village

Cost Production

Production costs are the amount of money spent by the company for building cages, warehouses, chickens, feed, labor, medicines and vaccines for a certain period (Winowoda *et al.*, 2020). Production costs for laying hens consist of fixed costs and variable costs (Haryuni and Fanani, 2017). Fixed costs incurred by laying hens include labor costs, depreciation costs for chickens, cages and equipment. Based on the results of the study, it was found that the average fixed cost incurred per 5000 laying hens per month was Rp. 2,568,000. Variable costs consist of costs incurred for the purchase of feed, vaccines, drugs, electricity, etc. The variable costs incurred per 5000 laying hens each month are Rp. 117,992,000.00.

The average total production costs incurred per 5000 laying hens per month at the laying hens farm in Sumberjo Village is Rp. 120.5600.00. The costs incurred for the purchase of feed is the largest cost of the total production costs (Haryuni and Lidyawati, 2019). The average cost for purchasing feed obtained in this study was 97.455% of the total production cost. The purchase of feed for 5000 laying hens per month is Rp. 117,492,000.00.

The price of feed obtained in this study varies from one farmer to another (Figure 2). Based on the results of the study, it was found that 40.000% of respondents the price of feed was 6200-6400/kg; 11.43% feed price 6401-6600/kg; 31.43% of respondents the price of feed is 6601-6800/kg and 17.14% of respondents the price of feed is 6801-7000/kg show in Figure 2.

Revenue

Revenue from the laying hens business is obtained from the sale of whole eggs, cracked eggs, and discarded chickens (Winowoda *et al.*, 2020). In this study, revenue is obtained from the sale of eggs.

The results of statistical analysis showed that 21.21% of respondents had 70-75% egg production; 54.55% of respondents egg production by 76-80%; 21.21% of respondents had 81-85% egg production and 3.03% of respondents had 86-90% egg production.

Egg production is an illustration of the amount of revenue received by farmers. Revenue will be even greater if egg production is high. The amount of egg production is influenced by
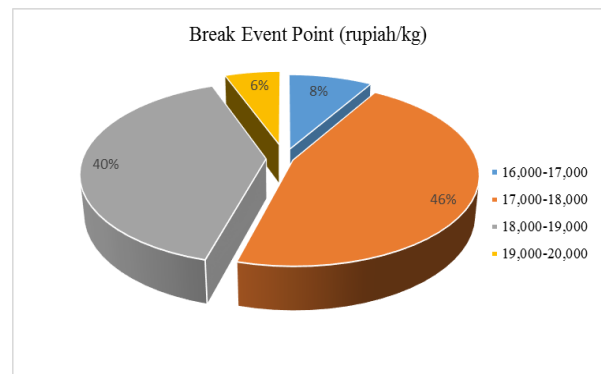

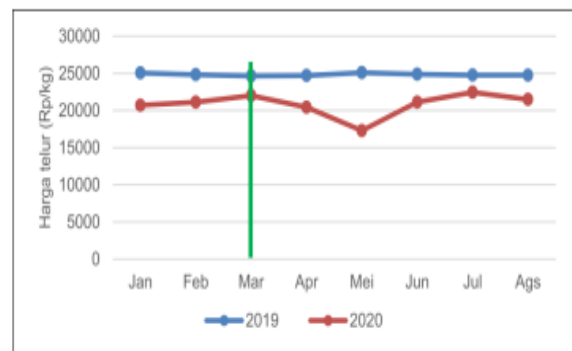**Figure 4**. Break event point for laying hens in Sumberjo village

Figure 5. Egg prices during the Covid-19 pandemic (Saliem, Agustian and Perdana, 2020)

the feed consumed, the health status of the chickens and also the productive age of the chickens (Haryuni, 2018; Haryuni *et al.*, 2022). The results of the calculation obtained revenue from the maintenance of 5000 laying hens each month from egg sales of Rp. 109,411,764.71 show in Figure 3.

Income

Income is the difference between revenue and total production costs (Mukminah and Purwasih, 2019). Based on the calculations as shown in Table 1 for the maintenance of every 5000 laying hens per month during the covid-19 pandemic, Rp. -11,148,235.29. This figure shows that farmers are experiencing losses. Table 1 shows the average BEP value of chicken eggs in the respondents is Rp. 16,715.53/kg eggs while the selling price of eggs ranges from 15,200-16,000/kg eggs.

The results showed as many as 8.57% of respondents get the price of BEP for chicken eggs Rp.16,000-17,000/kg; 45.71% of respondents Rp.17,000-18,000/kg; 40.000% of respondents Rp.18,000-19,000/kg and 5.71% of respondents Rp. 19,000-20,000/kg show in Figure 4.

The losses that occurred during the COVID-19 pandemic were partly due to higher feed prices while egg prices actually decreased. The low price of chicken eggs during the Covid-19 pandemic is due to the decline in people's purchasing power and demand for chicken eggs (Sukmawati *et al.*, 2020). The Covid-19 pandemic that is endemic in many countries has a significant impact on the decline in global economic performance (Suryana *et al.*, 2020).

Analysis of Revenue Cost Ratio (R/C)

The value of the revenue cost ratio (R/C) is calculated to determine the feasibility of the laying hens business to continue or not (Haryuni, 2018). Based on the results of the study, the R/C value was 0.91. R/C value < 1 indicates that this laying hens business is experiencing losses and is not feasible to continue (Winowoda *et al.*, 2020). The price of chicken eggs during the Covid-19 pandemic experienced quite sharp fluctuations (Saliem, Agustian and Perdana, 2020) show in Figure 5.

Conclusion

The results of this study narrowed down to one conclusion that the Covid-19 pandemic had an impact on the low feasibility of producing chicken business.

Suggestion

One solution so that the laying hens business can survive and continue, it is necessary to educate farmers to start exploring local feed ingredients so that feed costs can be reduced and select unproductive chickens. This aims to increase the efficiency of feed because unproductive chickens will increase the feed load.

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