Break-even point analysis and feasibility of livestock business

*Kampung Unggul Balitnak-Sentul Selected (KUB-SenSe)*

chicken farm in Talango Village, Kabila District, Bone Bolango Regency

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**Abstract.** This study was aimed to determine the break-even point in terms of sales price, revenue, and production volume as well as to analyze the feasibility of raising the KUB-SenSe chicken in Talango Village, Kabila District, Bone Bolango Regency. This research used descriptive analysis using primary and secondary data. The data obtained were then calculated using the break-even point analysis formula and the feasibility analysis of the KUB-SenSe chicken raising livestock business. The results obtained indicated that the analysis of the break-even point of the sale price of the KUB-Sense chicken rearing business as many as 250 heads in Talango Village, Kabila District, Bone Bolango Regency is IDR 40,494 and the break-even point of receipt was IDR 8,595,901. This result showed that the revenue received by KUB-SenSe chicken farmers is profitable and the value is much greater than the break-even point of acceptance. Furthermore, the feasibility analysis is worth 1.24 which means it is feasible to be developed.

1. **Introduction**

Animal husbandry is one of the subsectors in fulfilling the need for animal protein food. The food problem has become a problem that has not been fully resolved in rural areas [1], so there is a need for improvements to support the economy, especially in rural areas. Animal husbandry also makes a positive contribution to economic growth in Indonesia. The increase of all livestock commodities is always progressing. This proves that the livestock sub-sector has potential and has competitiveness.

The potential for chicken farms that are currently being developed is KUB chicken and SenSe chicken. *Kampung Unggul Balitnak* (KUB) chickens or commonly known as KUB chickens are a breed of chicken crossed from several native chickens which have the advantages of high egg production and low broodiness behavior. Furthermore, the Sentul Selected Agrinak-1 chicken or commonly known as the SenSe chicken has a higher meat production. KUB-1 chickens and SenSe chickens each have the advantage to be developed so that they can provide benefits for chicken farmers. The KUB and SenSe chicken farm business can be viewed from the profit of the chicken farm business, as well as the break-even point to see if the business is at a loss or not [2].

This study aimed to determine the break-even point of price and the break-even point of acceptance, in addition to knowing the feasibility of raising KUB-SenSe chickens.
2. Method
This research was conducted from March to May 2020 at KUB-SenSe chicken breeders in Talango Village, Kabila District, Bone Bolango Regency.

The data collected were primary data and secondary data. Primary data was obtained from direct observation (observation) and interviews, while secondary data is obtained from literature studies and other sources that support research. The data obtained were then analyzed to determine the break-even point analysis and R/C analysis by calculating the total cost [3], revenue [4], income [5].

2.1. Break-even point analysis
The analysis of the break-even point of the sale price and the break-even point of the receiving price were calculated using the following formula:

The break-even point of the sale price

\[ TiHP (IDR) = \frac{TC}{Y} \]  

Information: 
TiHP : Break-even point of sale price  
TC : Total cost  
Y : Total production

The break-even point of acceptance price

\[ TiP (IDR) = \frac{FC}{1-(\frac{VC}{R})} \]  

Information: 
TiP : Break-even point of acceptance price  
FC : Fixed costs  
VC : Variable costs  
R : Reception

2.2. R/C Analysis
The R/C analysis was calculated using the following formula:

\[ R/C = \frac{Total\ Revenue}{Total\ Cost} \]  

Conditions: 
R/C > 1 : The KUB-SenSe chicken farm is profitable  
R/C = 1 : The KUB-SenSe chicken farm is breaking even  
R/C > 1 : The KUB-SenSe chicken farm is losing money

Total cost

\[ TC = TFC + TVC \]  

Information: 
TC = Total production costs  
TFC = Total fixed costs  
TVC = Total variable costs

Total revenue

\[ TR = P \times Q \]  

Information: 
TR = Total revenue  
P = Product price  
Q = Number of products

Income

\[ I = TR - TC \]  

Information: 
I = Income  
TR = Total revenue  
TC = Total costs
3. Results and discussion

3.1. Break-even point analysis
Analysis of the break-even point in livestock business of the KUB-SenSe chicken rearing 250 heads in Talango Village, Kabila District, Bone Bolango Regency was presented in table 1.

Table 1. Analysis of break-even point in livestock business of the KUB-SenSe chicken rearing 250 heads in Talango Village, Kabila District, Bone Bolango regency.

| Component                  | Total    |
|----------------------------|----------|
| Fixed costs (IDR)          | 5,950,000|
| Variable costs (IDR)       | 3,687,560|
| Revenue (IDR)              | 11,980,000|
| Break-even point of sale price (IDR) | 40,494  |
| Break-even point (IDR)     | 8,595,901|

Table 1 showed that the break-even point of the sale price of the KUB-SenSe chicken raising livestock business is 250 heads is IDR 40,494. This showed that the KUB-SenSe chicken breeders have experienced an advantage. However, breeders should sell their chickens when the price of chickens is soaring high, such as before religious holidays and other major holidays, because the price is not determined by the number of chickens harvested but is influenced by the market price when it is sold.

The results of the analysis of the break-even point of acceptance were IDR 8,595,901. This value means that 250 KUB-SenSe chicken breeders do not lose or do not profit if the income is IDR 8,595,901. This shows that the revenue received by the KUB-SenSe chicken breeders experienced a profit and the value was much greater than the break-even point of IDR 11,980,000. The break-even point analysis is the total revenue equal to the total cost or the same profit [6], where the business has not yet made a profit or is equal to zero [7,8]. This analysis is important to determine the relationship between costs, volume and profit so that the business does not suffer losses [9] or not profit [10].

Fixed costs in the KUB-SenSe chicken rearing business are tools and equipment such as shovels, tarpaulins, buckets, cages, food and drinking containers, and cage lighting equipment. Meanwhile, variable costs include costs for DOC, feed, medicines, husks, and labor. Fixed costs are costs incurred during one production [11]. Meanwhile, variable costs are costs that are easily used up in one production.

3.2. Business feasibility analysis
The feasibility analysis in the livestock business of the KUB-SenSe chicken raising 250 heads in Talango Village, Kabila District, Bone Bolango Regency was presented in table 2.

The revenue from the sales of KUB-SenSe chicken and chicken feces was IDR 11,980,000 and the expenditure was IDR 9,637,560 so that the net profit was obtained by 250 KUB-SenSe chicken breeders is IDR 2,342,440. This showed that the farmer gets an advantage. Profit was the difference between revenue and costs incurred by the farmer. When the revenue or net profit is greater in value than the expenditure, the business gets a profit, on the other hand, if the cost of expenses is greater than the income, the business experiences a loss [12]. Income is the result of the difference between revenue and expenses or expenses [13]. Increasing the business scale will increase revenue and reduce production costs [14,15] so that an increase in revenue will be followed by a decrease in production costs which will increase the R/C.

R/C analysis can be used to see the efficiency of a business [16]. One way to see the level of success of a business is by using R/C analysis [17] so that it can be seen how much the efficiency of a business is [18]. Large business income does not always indicate a high level of efficiency of a business [19].
Table 2. The feasibility analysis in livestock business of the KUB-SenSe chicken rearing 250 heads in Talango Village, Kabila District, Bone Bolango regency.

| Component                     | Total  |
|-------------------------------|--------|
| Revenue (IDR)                 | 11,980,000 |
| Sales of 238 chickens (IDR)   | 11,900,000 |
| Sales of chicken feces        | 80,000     |
| Expenditures (IDR)            | 9,637,560  |
| Fixed costs (IDR)             | 5,950,000  |
| Variable costs (IDR)          | 3,687,560  |
| Net Profit (IDR)              | 2,342,440  |
| R/C ratio                     | 1.24      |

The R/C value of 1.24 indicated that the breeders of KUB-SenSe raising 250 chickens need gross income or net profit of 1.24. An increasing business will also increase revenue and reduce production costs so that it will increase R/C [20]. Sentul chicken business productivity has a significant effect on R/C [21]. If the R/C ratio is more than 1, the business is said to be profitable or feasible to develop [22].

Table 2 showed that the KUB-SenSe chicken rearing business in Talango Village, Kabila District, Bone Bolango Regency is feasible to be developed. Every farmer always expects success in his livestock business. One of the parameters that can be used to determine the level of success of a business is to see the benefits it gets. Therefore, the livestock business always follows economic principles, which is to use production factors efficiently to achieve high yields. The ability of breeders in managing their business plays an important role in determining the success or failure of the livestock. The size of the business does not guarantee high productivity if it is not accompanied by good maintenance management [23]. The livestock business is said to be financially feasible if the benefits obtained are greater than the costs incurred [24].

4. Conclusion

Analysis of the break-even point of the sale price of the KUB-SenSe chicken rearing business as many as 250 heads in Talango Village, Kabila District, Bone Bolango Regency was IDR 40,494 and the break-even point of receipt was IDR 8,595,901. This showed that the revenue received by the KUB-SenSe chicken breeders experienced a profit and the value was much greater than the break-even point of IDR 11,980,000. Furthermore, the feasibility analysis was worth 1.24 which means it is feasible to be developed.

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