

# The feasibility of broiler farming in a partnership model

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**Abstract.** This research was conducted at Unggas Jaya Farm, located in Karangrejo Village, Wungu District, Madiun Regency. The purpose of this study was to determine the capital and production costs required to achieve profitability, and to analyze Break Even Point, production costs, revenue, income, Revenue Cost Ratio, and Benefit Cost Ratio. The respondents in this study were the employee and manager of Unggas Jaya Farm. The research was carried out in May 2023 by interviewing the owner of Unggas Jaya Farm by means of questionnaires. The results show that the total business capital was IDR 3,314,388,085; with the production costs was IDR 1,513,357,675. The total revenue was IDR 1,647,660,654; and the total income is IDR.124,901,770.58. The Break Even Point for broiler price is IDR 19,018/kg, with Break Even Point unit of 73,758.85 kg. The Revenue Cost Ratio (R/C) is of 1.08, indicating that the broiler farming business is considered feasible ( $R/C > 1$ ). The Benefit Cost Ratio is 0.083, indicating a profit of IDR 0.083 for every unit of production cost. The study concluded that Unggas Jaya Farm's broiler farming business is feasible and profitable for further development.

## 1 Introduction

Indonesia is an agrarian country where agriculture plays a significant role in the national economy. Broiler farming is one of the most popular livestock sectors in Indonesia. In 2022, broiler meat production in Indonesia reached 3,765,573.09 tons/year or an increase of 18.2% compared to that in 2021. In East Java province, broiler population in 2022 was 493,647,833 heads with a total meat production of 586,703.35 tons so that East Java is the province with the largest population [1], [2], [3]

The impetus for farmers to join the partnership system is the availability of farmer production equipment, available experts, capital that is not too expensive. The company provides, the product market is guaranteed. The cooperation that must be formed must produce satisfactory profits so that the broiler farming business can be carried out in the long term and can generate profits for both parties. The weakness in the core plasma system is that farmers are still not very familiar with their rights and obligations. The production costs incurred by the plasma which change every production will determine the profit of the plasma. An increase in production costs will affect the profits earned by the plasma.

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Feasibility analysis in business is important. A livestock business can be called feasible if the benefits obtained are higher than the costs that have been incurred so that a livestock business can last a long time. Farmers must conduct a feasibility analysis to minimize risk, expand the business, enlarge the business, and increase the profit to be obtained, in accordance with what is expected optimally

## 2 Research Methods

This research was conducted at Unggas Jaya Farm in Karangrejo Village, Wungu Subdistrict, Madiun Regency in May 2023 using the data for one period in March 2023. Based on these data, we calculated the farmer's income and analyzed the feasibility of the farm business using several formulas as follows:

Production costs are costs incurred to produce output.

$$TC = TFC + TVC$$

Description:

TC: Total Production Cost (IDR)

FC: Total Fixed Cost (IDR)

VC: Total Variabel Costs (IDR)

Broiler business revenue is the price (IDR) multiply with the total broiler weight (Kg).

$$TR = P \cdot Q$$

Description:

TR : Total Revenue (IDR)

Q : Total Harvest Weight (Kg/period)

P : Contract price (IDR/kg)

Income are obtained from the total revenue deducted by the total production costs.

$$\pi = TR - TC$$

Description:

$\pi$ : Income (IDR)

TR : Total Revenue (IDR)

TC : Total Production Cost (IDR)

Feed Conversion Ratio (FCR) is the comparison between total feed consumption and the body weight gain.

$$FCR = \frac{\text{Total Feed Consumption}}{\text{Body Weight Gain}}$$

Broiler mortality is the comparison between the number of dead chickens and the total number of chickens.

$$\frac{\text{Number of Dead Chickens}}{\text{Total Number of Chivkens}} \times 100\%$$

Performance index is one of the parameters used to determine the level of success in broiler maintenance. Formulator calculating Index Performance as follows:

$$IP = \frac{(100-D) \times BB \times 100}{FCR \times \left(\frac{A}{U}\right)}$$

Description:

IP: Performance Index

D : Percentage of Depletion/Mortality (%)

BB: Average Body Weight (Kg)

FCR: Feed Conversion Ratio

A/U: Average Age of Harvest (Days)

Break Even Point is the cost that comes out equal to the value of the sales price of a product. The formula for calculating BEP unit & BEP price is as follows:

$$BEP\ UNIT = \frac{Total\ Production\ Cost\ (IDR)}{Contract\ Price\ (IDR)}$$

$$BEP\ PRICE = \frac{Total\ Production\ Cost\ (IDR)}{Total\ Production\ (Kg)}$$

Revenue Cost Ratio is the comparison between total revenue and costs. The formula for calculating R/C is as follows:

$$R/C\ Ratio = \frac{Total\ Revenue}{Total\ Cost}$$

Indicators of Business Feasibility:

- RC > 1, Feasible Business
- RC < 1, Business Not Viable
- RC = 1, Break-even

Benefit Cost Ratio is the profit divided by the production costs. The formula for calculating B/C is as follows:

$$B/C = \frac{Total\ Benefit\ (IDR)}{Total\ Cost\ (IDR)}$$

B/C Ratio calculation criteria

- B/C > 0 then the business/project is profitable and not detrimental.
- B/C < 0 then the business/project will experience a loss.

### 3 Result and discussion

Assets and money companies is named capital that require to fund their standard operations and generate revenue. To produce their products or services company need capital to allows businesses to cover expenses. Company can use products and services that provide profit to generate new capital and continue to increase revenue.

**Table 1.** Business Capital of Unggas Jaya Farm

<b>Fixed Capital</b>	<b>IDR/Farm</b>
Land Rent/Taxes	15,000,000
Cage and Warehouse	1,560,000,000
Feed Bin	43,680,000
Drinking Place	23,850,000
Electrical Installation	90,000,000
Water Installation	30,000,000
Employee Salary	52,500,000
Total Fixed Capital	1,815,030,000
Working Capital	
DOC Seedlings	359,100,000
Feed	1,073,361,778
OVK	3,186,590
Disinfectant	840,000
Electricity and Water Costs	22,731,707
Employee Consumption	1,000,000
Cage Maintenance	1,008,000
Employee Bonus	5,000,000
Gas Brooder	18,630,000
CSR	2,000,000
Chaff	10,500,000
Daily Labor	2,000,000
Total Working Capital	1,499,358,085
Total Initial Capital	3,314,388,085

### 3.1 Production

Production costs are costs that have been incurred and used to produce a product for sale in one period. Production costs are divided into two, namely fixed costs and variable costs or variable costs. According to [13], production costs include direct materials, factory costs and direct employee costs.

### 3.2 Fixed Cost

Fixed costs are costs incurred by farmers are costs. fixed costs that cannot change in value and amount such as the cost of making cages and cage equipment. According to [11] fixed costs affect the value of production and will never change in value. Some components of fixed costs such as depreciation costs. Depreciation of cages, depreciation of feed bins, depreciation of drinking bins, interest on capital loans and tax costs. Table 2 shows that the costs used by Unggas Jaya Farm in that period.

**Table 2.** Fixed costs of Unggas Jaya Farm

Fixed Cost Type	Economic Period	Depreciation (IDR/Period)
Land Rent	70	214,285.71
Cage	175	5,485,714.29
Place Feed	175	221,028.57
Drinking Place	175	121,428.57
Electrical Installation	175	342,857.14
Water Installation	175	114,285.71
Salary	7	7,500,000
Total Fixed Cost		13,999,600

### 3.3 Variable Cost

Variabel costs are costs whose value will always change according to changes in the amount of production carried out such as DOC seeds, feed, medicines, electricity, employee salaries and others. [7] said that the amount of variable costs depends on the amount of production. The amount of production carried out is large or small. The costs of DOC, feed, medicine, electricity, chaff, and labor are variable costs incurred to produce broilers. Variabel costs incurred by Unggas Jaya Farm can be seen in Table 3.

**Table 3.** Variable costs of Unggas Jaya Farm

Types of Variable Costs	Total	Total (IDR)
DOC	42,000	359,000,000
Feed	119,400	1,073,361,778
OVK	1	3,186,590
Disinfectant	20	840,000
Electricity and Water	1	22,731,717
Consumption Employees	1	1,000,000
Care Cage	1	1,008,000
Bonus Achievements	5	5,000,000
Gas	90	18,630,000
CSR	1	2,000,000
Chaff	1,500	10,500,000
Labor	10	2,000,000
Non-Fixed Costs		1,499,358,085

The total production costs incurred by Unggas Jaya Farm in one period obtained a value of IDR.1,513,357,675 / period. This value is obtained from the sum of total fixed costs and total variabel costs. Total production costs will change in several other periods because they are influenced by market prices at that time.

### 3.4 Revenue

Revenue is a result that has been obtained from the production process during one period in the form of selling a product. Revenue is influenced by the amount of production obtained so that the more the number of products produced, the more income the breeder gets. Revenue can be calculated by means of the price of goods set multiplied by the number of products or goods produced in that period [4]. Table 4 shows that Jaya Farm Poultry revenue in one period.

**Table 4.** Revenue of Unggas Jaya Farm

Type	Total	Total Revenue (IDR)
Sales Chicken	79,573.5 (Kg)	1,632,660,654
Bonus Partnership	1 (Period)	15,000,000
Total revenue		1,647,660,654

Table 4 shows that the revenue of Unggas Jaya Farm in one period or for 35 days after harvesting. The total production costs incurred by Unggas Jaya Farm in one period obtained a value of IDR.1,513,357,675 / period. This value is obtained from the sum of total fixed costs and total variabel costs. Total production costs will change in several other periods because they are influenced by market prices at that time. Amounting to 79,573.5 Kg/period. These results were multiplied by the contract price of IDR.20,518, resulting in an amount of IDR.1,632,660,654 per period. This agrees with [5] which states that the largest proportion of revenue on broiler farms is from the sale of chickens themselves which depends on the price of chickens at that time. Acceptance of one period with a certain period will change so that the revenue earned from chicken sales will change as well.

### 3.5 Income

Opinion or profit is the result obtained by the farmer in a certain period. Income is obtained from revenue in a farm minus the total costs incurred by the farmer. Table 5 shows the calculation of gross and net income at Unggas Jaya Farm.

**Table 5.** Unggas Jaya Farm Income

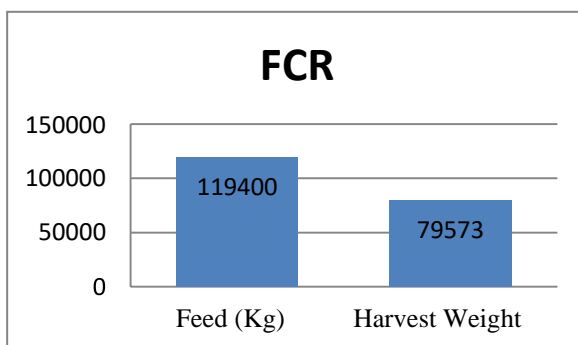
Calculations	Total (IDR)
Total Revenue	1,632,660,654
Total Production Cost	1,513,357,675
Total Revenue Gross 1 Period	134,302,979
Total Revenue Gross 1 Year	940,120,853.81
1% tax in 1 Year	9,401,208.79
Total Revenue Clean	124,901,770.58

Table 5 shows that the March period of income from Unggas Jaya Farm was IDR.1,632,660,654 / period so that minus the production costs in that period of IDR.1,513,357,675 per period, the gross income from Unggas Jaya Farm was IDR.134,302,979 per period so that the income of Unggas Jaya Farm in 1 year was IDR.940,120,853.81. Unggas Jaya Farm's income is less than IDR.4.8 billion so that the tax to be paid is 1%. According to [15] that the amount of tax for chicken farmers with income

turnover in one year is less than IDR.4.8 billion, the tax obtained is 1% in accordance with PP 46 of 2013. If the turnover obtained is more than IDR.4.8 billion per year, the tax to be paid will be different in accordance with Law number 36 of 2008 article 17 of the Income Tax Law. Unggas Jaya Farm's net income after tax deduction is 1% or IDR.9,401,208.54 per year so that the amount after the reduction is IDR.124,901,770.58 per period.

### 3.6 Feed Conversion Ratio

Feed Conversion Conversion Ratio (FCR) is a factor that will affect the success of animal husbandry. The function of FCR is to calculate the amount of feed that has been consumed to form and obtain one kilogram of meat. [10] said that FCR is used to see the productivity of livestock, if the higher the FCR value, the higher the consumption of feed required. The economic value of livestock business can be influenced by the FCR value. The FCR value at Unggas Jaya Farm can be seen in Diagram 1.

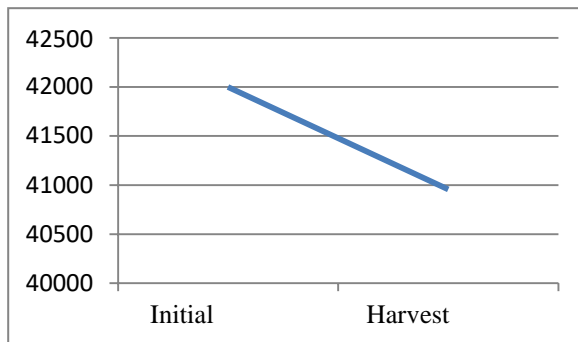


**Fig 1.** Feed Conversion Ratio

The FCR value is obtained from the amount of feed consumption in that period and then divided by the harvest weight. The FCR value of Unggas Jaya farm in that period was 1.5. The FCR value multiplied by the feed price of IDR 8,990 will produce a value of IDR.13,485 per period so that it can be interpreted that to produce 1 kg of meat, farmers will need costs of IDR.13,485 per period. The selling price of broilers at Unggas Jaya Farm is IDR.20,158, so the difference between the selling price of broilers and the cost of feed needed is IDR.6,673 per period.

### 3.7 Mortality

According to [8], mortality is a measure of the number of deaths in a population. Mortality can be influenced by disease and genetics. Mortality factors are caused by climate/weather, disease, livestock behavior and farmer factors that reduce the use of vaccines and drugs to reduce existing production costs. Figure 2 is the initial population and population harvest at Unggas Jaya Farm.



**Fig 2.** Broiler Population of Unggas Jaya Farm

The mortality value is calculated from the total initial population of 42,000 minus the harvested population of 40,956, so the number of chickens that died was 1,044 in that period. The dead population was divided by the initial population and then multiplied by one percent to get the mortality value for that period. The mortality value of Unggas Jaya Farm in that period was 2.49 percent.

### 3.8 Performance Index

The Performance Index (IP) is an indicator of success in the broiler farming business. [9] added that the Performance Index is one of the parameters used to determine the level of success in broiler maintenance. Table 6 shows the IP value at Unggas Jaya Farm.

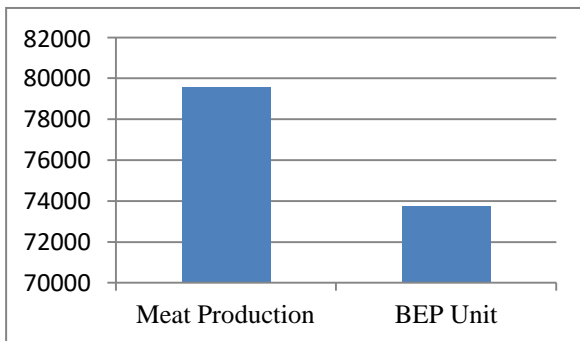
Table 6. IP value of Unggas Jaya Farm

Live Chicken (%)	Average Weight (Kg)	Harvest Age (Days)	FCR
97.51	1.94	32.72	1.5
<i>Performance Index (IP)</i>			398

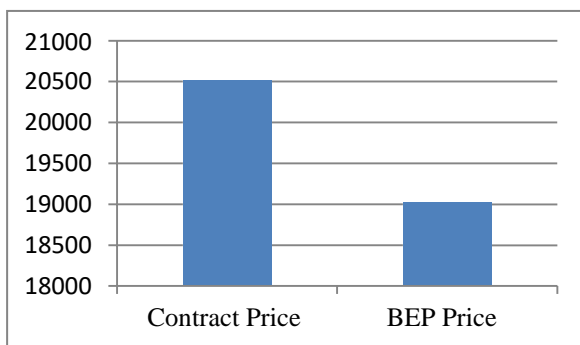
[12] said that the IP value is grouped into four <300 is said to be poor, the value of 300-350 is said to be quite good, the value of 350-350 is said to be quite good. 400 is said to be good and the value > 400 is very good. Unggas Jaya Farm received a score of 398, this value is higher than 350. Unggas Jaya Farm in that period has managed broiler farms well, so that the benefits that will be obtained by Unggas Jaya Farm are classified as profitable and efficient in managing the livestock business.

### 3.9 Break Even Point

Break Even Point (BEP) is one of the business feasibility factors. BEP is the break-even point of costs or expenses and income at a balanced point so that at that point the value does not experience a loss or profit. Business feasibility analysis using the Break Even Point (BEP) factor has two calculation formulas, namely price BEP and unit BEP. Diagrams 2 and 3 are the calculation of Break Event Point (BEP) and the comparison of production results and contract prices at Jaya Farm Poultry farm.



**Fig 3.** Comparison of BEP Unit and Meat Production Unggas Jaya Farm



**Fig 4.** Comparison of BEP Price and Contract Price of Unggas Jaya Farm

During this period, Unggas Jaya Farm was able to produce more meat, namely 79,573.5 Kg per period compared to the BEP value of the unit of 73,758.85 Kg per period. The price BEP value is IDR.19,018 while the contract price agreed by Unggas Jaya Farm and the core company is IDR.20,518, so the contract price value is higher than the calculated price BEP value, so it is certain that Unggas Jaya Farm gets more profit.

### 3.10 R/C Ratio

Revenue Cost Ratio (R/C) is one of the business feasibility analysis factors. Revenue Cost Ratio is used to calculate and see the relative benefits of a business. According to Murti et al. (2020) R/C is the numerical value of the benefits and revenues obtained for every IDR.1 spent in the process of producing a product. The formula of R/C is the total revenue divided by the cost so that the R/C value is generated. The greater the R / C value, it is certain that the profit will also be greater. The R/C value of Unggas Jaya Farm can be seen in Table 7.

**Table 7.** R/C value of Unggas Jaya Farm

Total Revenue	IDR.1,632,660,654
Total Cost	IDR.1,513,357,675
Value (R/C)	1.08

The results of the calculation with the R / C formula, namely the total revenue for one period divided by the total production costs in one period, obtained a number worth 1.08. The results of these calculations mean that the R / C value of Unggas Jaya Farm has exceeded the value of 1. The R / C value can be interpreted that every IDR.1 of total production costs that have been incurred will generate a profit of IDR.1.08 per period, it can be seen from the criteria that the Unggas Jaya Farm business can be declared feasible and profitable.

### 3.11 B/C Ratio

Benefit Cost Ratio (B/C) is a business feasibility analysis that must be carried out in a livestock business. The B/C value is calculated to see how much profit is obtained in production costs. According to [6] if B/C gets a value  $> 0$  the business can be considered profitable and feasible to implement, B/C gets a value  $< 0$  the business can be considered unprofitable and not feasible to implement. Table 8 shows the value of the Benefit Cost Ratio (B/C) per period generated by Unggas Jaya Farm.

**Table 8.** B/C value of Unggas Jaya Farm

Net Profit	IDR 124,901,770.58
Total Cost	IDR.1,513,357,675
Value (B/C)	0.083

Unggas Jaya Farm gets a B / C value of 0.083, meaning that every production cost incurred by Unggas Jaya Farm of IDR.100, a profit of IDR.0.083 per period is obtained so that the Unggas Jaya Farm broiler farm can be considered profitable and feasible to continue.

## 4 Conclusions and Suggestions

### 4.1 Conclusions

Based on research on the fisibility of the Jaya Farm Poultry farm business in Karangrejo District, it can be concluded:

1. That the total business capital of Unggas Jaya Farm consisting of fixed capital and working capital amounted to IDR.3,314,388,085; (54.76%) fixed capital and (45.24%) working capital, total production costs of IDR.1,513,357,675, total revenue of IDR.1,647,660,654 and total income of IDR.124,901,770.58.
2. BEP price of Unggas Jaya Farm IDR.19,018/kg, BEP unit 73,758.85/kg. R/C of broiler livestock business Unggas Jaya Farm 1.08. So based on  $R/C > 1$ , it means that the broiler livestock business of Unggas Jaya Farm in Karangrejo District is declared feasible to be cultivated because the revenue obtained by farmers is sufficient to cover the total costs that have been incurred. Analysis of the feasibility of B / C broiler livestock business Unggas Jaya Farm worth 0.083 means that a profit of IDR.0.083 per period is obtained for each production cost incurred.

## 4.2 Suggestions

For further research, researchers can calculate in more detail and choose locations that have complete data from year to year. So that it can analyze with various business feasibility factors that have been determined.

## References

1. Badan Pusat Statistik, Populasi Ayam Ras Pedaging menurut Provinsi(Ekor) 2018-2022 (2022)
2. Badan Pusat Statistik, Produksi Daging Ayam Ras Pedaging menurut Provinsi (Ton) 2018- 2022 (2022)
3. Badan Pusat Statistik, Rata-rata Konsumsi Perkapita Seminggu Menurut Kelompok Daging PerKabupaten/kota 2018-2020 (2022)
4. Fajarani, R. *Jurnal Aves*.**10** (1): 1-10 (2016)
5. N. Febrianto, J. A. Putritamara, B. Hartono. *Agriekonomika*. **7**(2):168-175 (2018)
6. Lailina, I Yurki., Sunarto, B Sudarmanto. *Jurnal Agriekstensia*. **19** (1) : 78 – 86 (2020)
7. Nurjana, I Nyoman.,R Anggraeni, I Kruniasih. *Agros*. **17** (2): 214- 221(2015)
8. N, Aisyah., M. A. Santi, N. Harahap, M. F. Harahap. *Jurnal Ilmiah Peternakan Terpadu*. **6**(3): 134-139 (2018)
9. T. Nuryati. *Jurnal Peternakan Nusantara*. **5** (2):77-86 (2019)
10. A. Qurniawan, I. I. Arie, R. Afnan. *Jurnal Veterenier*. **17** (4): 622-633 (2016)
11. Simanjuntak, M. Christiana. *Jurnal Faperternak*. **3**(1):60-81 (2018)
12. S, Darham dan N. I. Effendi. *Stock Peternakan*. **5**(1) : 1 -10 (2023)
13. A. Witjaksono, *GrahaIlmu: Yogyakarta*. (2006)
14. Zuhairoh., T. S. Aji, Ardianto. *Jurnal Akademi Akuntansi*. **2**(2) : 81 -92 (2019)