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FINANCIAL ANALYSIS OF BROILER CHICKEN FARMING BUSINESSES IN THE SANTRI EMPOWERMENT PROGRAM IN LANGKAT DISTRICT

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Abstract

Funding is one of the biggest problems facing small-scale broiler chicken farmers. Another problem is not knowing how to cultivate it properly and the difficulties in selling it. Partnerships are one way to overcome the challenges commonly faced by boiler chicken farmers. PT. Charoen Pokphand and Pesantren Darussalaam, who run a boiler chicken farming operation in Langkat, North Sumatra Province, use the partnership model. The purpose of this study is to calculate the financial feasibility of the program using the benefit cost ratio (BCR), net present value (NPV), internal rate of return (IRR), and payback period (PP). Additionally, to determine how changes in labor expenses and feed prices may affect farmers' revenue. With a purposive sampling method, this explanatory research uses a case study strategy. The results of the financial analysis found that Darusalam Islamic Boarding School boiler chicken farming business was feasible, as indicated by the net present value (NPV) of IDR 316,719,165, benefit cost ratio (BCR) of 1.74, internal rate of return (IRR) of 25%, and payback period (PP) of 1.93 years. The results of the sensitivity analysis have the most sensitive changes to the business in the form of increased feed costs. Partnership system broiler farmers like Darussalam Islamic Boarding School cannot regulate selling and feed prices, so the only way to keep the business viable is to maintain the resulting production. Therefore, Farmers must be able to master cage management and good production management in order to produce maximum broiler chicken production

Keywords: ***broiler, financial feasibility, empowerment***

1. INTRODUCTION

The livestock subsector is an important part of the food supply process, both in Indonesia and throughout the world (Clemmons et al., 2021). Animal protein can be found in livestock products. Poultry, small livestock, and large livestock are the three main categories of livestock. Because it is easily accessible and useful as a meat substitute, chicken is the most preferred variety of poultry (Wang et al., 2021). To support the people's economy in rural areas, chicken farming is the most important part of the livestock sector (Queenan et al., 2021). Chicken farming allows poor and marginalized communities to earn a steady income in addition to being a healthier and environmentally friendly food source (Abbasi et al., 2023). Langkat Regency is one of the districts in North Sumatra Province which has the largest contribution to the population of broiler chickens outside Java. North Sumatra Province had the largest contribution at 4.99 percent, South Sumatra 3.21 percent, Riau 2.85 percent, South Sulawesi 3.03 percent, Lampung 2.9 percent, and Bali 2.57 percent. In 2022, the population of broiler chickens in North Sumatra Province will increase by 21.77 percent (BPS North Sumatra, 2022). According to (BPS North Sumatra, 2023), broiler chicken production in North Sumatra Province increased to 193,126,419.35 kilograms in 2022 from 162,133,878.75 kilograms in 2021. Fifteen (15) districts/cities are considered centers for chicken development broiler. Among these areas are Deli Serdang, Labuhan Batu, Langkat, Simalungun, Batubara, Toba Samosir, Serdang Bedagai, Asahan, South Labuhan Batu, North Tapanuli, South Tapanuli, North Batu Labuhan, South Nias, West Nias, and Central Tapanuli. The three most prominent regions are Deli Serdang with annual consumption of 21,839,581 tonnes, Labuhan Batu with 7,223,888 tonnes, and Langkat with 8,814,397 tonnes. In other words, Langkat

Regency is one of the three best places to develop broiler chickens (Susanty, 2021). Broiler chicken production in Langkat will reach 5,377,183.92 kg in 2021, and North Sumatra Province will reach 7,128,182.81 kg in 2022 (BPS North Sumatra, 2023). However, the majority of current marketing strategies still depend on traditional markets. Traders at the main market, retail traders, collectors, cutters, wholesalers/middlemen, agents and farmers precede consumers. As a result, the cost of chickens for farmers is often very low—often even lower than the Cost of Production (COGS), but still expensive for consumers. In addition, the imbalance of production selling prices is a difficult problem for farmers to solve, and its impact on chicken population growth is closely related. The analysis results show that fixed costs reached 6,240,063 rupiah, variable costs reached 84,947,792 rupiah, and feed costs contributed 66.3% of production costs for a chicken population of less than 5,000 (Lailina et al., 2020).

Production, policy and general social risks in the broiler chicken industry. Government policies can also hinder business growth. Broiler chicken farmers can reduce risks by working together, especially in a partnership system. This collaboration has shared benefits and risks (Tanjung et al., 2023). Broiler chicken farmers, especially small farmers, also face other common problems, such as problems with marketing livestock products, lack of funds, and ignorance about proper rearing procedures for broiler chickens. Broiler breeders often use the partnership method for this reason. According to research by Nauratudini (2022), (plasma) breeders are weak in negotiating the costs of seeds, animal feed and chicken production. The partnership (core) corporation has more negotiating control over partner farmers because of this vulnerable position, especially in terms of yield determination. Farmers and companies will likely share profits. Therefore, farmer performance and cost effectiveness are very important for farmers who join the partnership (Indrawan et al., 2020). Cost efficiency can be achieved for businesses that have a large number of family members. Households with more members can use family labor, which helps reduce labor costs and creates a strong foundation for increasing efficiency (Aji et al., 2023). The majority of teachers and students in Islamic boarding schools live or reside in the Islamic boarding school environment.

As a result, Islamic boarding schools have a fairly large workforce, which can be used to reduce their business costs. This partnership is good to do with Islamic boarding schools because Islamic boarding schools have quite a large workforce. The Darussalam Islamic boarding school has similar learning and systems to various Islamic boarding schools throughout Indonesia. Darussalam Islamic boarding schools receive general education instruction, while Islamic boarding schools continue to study various religious knowledge while offering life skills education and student empowerment initiatives. One of the businesses at the Darussalam Islamic boarding school is broiler chicken farming in partnership with PT. Charoen Pokphand. Apart from being a source of income for Islamic boarding schools, livestock businesses are also used as a part of non-formal education with life skills education programs that empower students. Therefore, based on the data that the author obtained, the author wants to analyze the financial feasibility of the broiler chicken farming business in the student empowerment program at the Darussalam Islamic Boarding School, Langkat Regency, North Sumatra Province. The aim of this research is to calculate the financial feasibility of a broiler chicken farming business in a student empowerment program using Benefit Cost Ratio (BCR), Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period (PP). In addition, to ascertain how changes in labor costs and feed prices will affect farmers' income.

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2. IMPLEMENTATION METHOD

2.1 PLACE AND TIME OF RESEARCH

The study was carried out from December 2023 to January 2024. The population of this research was the Darussalaam Islamic boarding school and PT. Charoen Pokphand which is located on Jalan Kampung Durian Dusun V Pasar 8, Kwala Air Hitam Village, Finish District, Langkat Regency, North Sumatra Province. The Purposive Sampling method was used in determining the sample. Based on the specified criteria, the sample in this study was 1 person who was in charge of the Darussalam Modern Islamic Boarding School, 1 person who was in charge of the livestock business unit of the Darussalam Modern Islamic Boarding School, 1 person in the partnership division of PT. Charoen Pokphand, and 3 students at the Darussalam Modern Islamic Boarding School.

2.2 PROCESSING METHODS

In this research, the main data collection method consists of interviews or questions and answers with pre-designed questions. Next, to obtain additional information, researchers carried out observations, namely recording the behavior and activities of people at the research location. Qualitative data is used to describe and explain the conditions of the research subject, while quantitative data is used to explain the analysis of business output and input. This analysis includes production costs, revenues, and revenues, and is then used to calculate sensitivity and financial feasibility.

2.3 PRODUCTION COST ANALYSIS

1. Fixed Costs
   These are costs that are not influenced by the production produced and are formulated as follows:

$$TFC = FC\ xn$$

Information:
TFC = Total Fixed Cost (Rp/period)
FC = Fixed Cost
n = Number of inputs

Depreciation costs are also part of fixed costs which are calculated as follows:

$$D = \frac{Pb - Ps}{T}$$

Information:
D = Depreciation
PB = Purchase price (Rp)
Ps = Selling price (Rp)
Q = length of use (years)

2. Variable Costs (Variable Cost)
   This is a cost whose size is influenced by the production produced and is formulated as follows:

$$TVC = VC\ xn$$

Information:
TVC = Total Variable Cost
VC = Variable Cost
n = number of units

3. Production cost
   This is the total of all costs incurred during the production process.

$$TC = TFC + TVC$$

Where:
T.C = Total Cost (Rp/period)
TFC = Total Fixed Cost (Rp/period)
TVC = Total Variable Cost (Rp/period

2.4 FINANCIAL ANALYSIS

1. Acceptance Analysis
   Revenue is calculated using the formula:

$$TR = PQ$$

Where:
TR = Total Revenue (Rp/period)
Q = Quantity (Kg/period)
P = Price (Rp/Kg)

2. Profit Analysis
   Calculated by the formula:

$$Y = TR - TC$$

Where:
Y= Income (Rp/period)
TR= Total revenue (Rp/period)
TC= Total cost (Rp/period)

3. Net Present Value (NPV)
   By calculating the NPV value, companies can assess the ability and potential of a company to manage its investments for the next few years. NPV is calculated by the formula:

$$NPV = \sum_{i=1}^{n} (Bt - Ct)(DF)$$

Information:
Bt = Benefit in year t
Ct = Cost in year t
DF = Discount factor
i = applicable interest rate
n = length of time period

Criteria:
NPV > 0, then the broiler chicken farming business is a profitable business and worth implementing.
NPV < 0, then the broiler chicken farming business will experience losses and it is better not to run the business.
NPV = 0, the broiler chicken farming business has no profit or no loss.

4. Internal Rate Return (IRR)
   The IRR value shows the ability of a project to produce a Return of Capital or the level of profit that it can achieve. The formula used to calculate IRR is:

$$IRR = i_1 + \frac{NPV_1}{(NPV_1 - NPV_2)}(i_2 - i_1)$$

Information:
IRR = Internal Rate of Return
NPV1 = First Net Present Value

NPV2 = second Net Present Value
i_1 = Discount Factor (Interest Rate) Lowest
i_2 = Discount Factor (Interest Rate) highest

5. Benefit Cost Ratio (BCR)
   An overview of how much benefit can be obtained compared to the costs incurred. The formula used is as follows:

$$BCR = \frac{\sum PV\ kas\ bersih}{\sum PV\ investasi}\ x\ 100\ \%$$

Criteria:
BCR > 1 then it is accepted or declared appropriate.
BCR < 1 then it is rejected or declared unfit.

6. Payback period
   It is the capital return period or the length of time required to return the initial investment or capital that has been spent.

$$Payback\ Period = \frac{I}{Ab}\ x\ 1\ Tahun$$

Information:
I = Investment Value
Ab = Net cash incoming which has taken into account the time value of the money.

7. Sensitivity analysis
   To see changes in farmer income if feed prices and labor costs increase by 5%, 10% and 15%. Then proceed with a financial feasibility analysis to find out how feasible it is for the business to continue running if prices increase.

3. RESULTS AND DISCUSSION

3.1 RESPONDENT OVERVIEW

Darussalam Islamic Boarding School is an educational institution that fosters general education, learning religious knowledge, and other skills in terms of life skills. This Islamic boarding school was founded specifically for needy and orphaned students, who are not charged any fees during their education. Apart from that, Islamic boarding schools also accept ordinary students who are charged for food and other administrative costs. This Islamic boarding school has been established since 2018 and currently has 98 students.

3.1.2 Darussalam Islamic Boarding School Broiler Chicken Farming Business

This broiler chicken farm is a private farm owned by the caretaker of the Modern Islamic Boarding School Darussalam Langkat Didik Gunawan, MA. Previously he had a livestock business with an open house cage model, which over time was upgraded to a closed house cage and collaborated with PT. Karya Usaha Mandiri, which is a subsidiary of PT Charoen Pokphand Indonesia. The location of the farm itself is in Mancang Village, Finish District, Langkat Regency, about 4.5 km from the Islamic boarding school in Kuala Air Hitam Village, Finish District, Langkat Regency. There are 3 chicken coops with a capacity of ±28,000 chickens. With dimensions of 14m x 120m, the position of the chicken coop extends to the east according to sunlight and has good ventilation and air circulation.

3.1.2 Partner Companies

PT Karya Pahlawan Mandiri is a corporation that collaborates with the Darussalam Islamic boarding school broiler chicken company. This PT is an agricultural-related subsidiary of PT Charoen Pokphand Indonesia. In collaboration with local communities and NGOs, PT Karya Pahlawan Mandiri is developing the broiler chicken industry.

3.1.3 Partnership Pattern

The core party is PT. Charoen Pokphand and Pesantren Darussalam as plasma parties. The partnership scheme is depicted in the following figure.

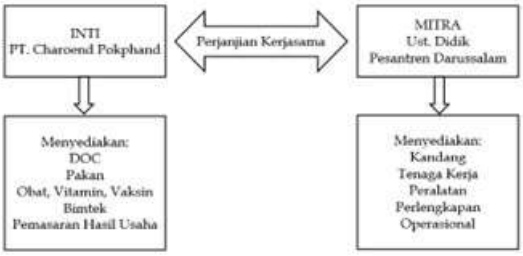

Figure 1. Partnership Pattern between CPIN and Darussalaam Islamic Boarding School
Source: Processed Primary Data, 2022

3.2 PRODUCTION COST ANALYSIS

Data about production costs is needed to determine whether a business is worth developing or not. There are six harvest periods in a year: January to February is the first, followed by March to April in the second period, May to June in the third period, July to August in the fourth period, September to October in the fifth period, and October to December in the sixth.

3.2.1 Cost of Capital

Capital costs for closed cages are higher than open cages. However, closed cages have advantages, such as the temperature and humidity conditions in the cage can be regulated, so that temperature and humidity changes are fewer, cage density is higher, and the impact on the social environment can be reduced because the smell of feces and flies is minimized. The capital calculated is the cost of building cages, building warehouses, building employee mess halls and procuring equipment. The following is the capital estimate for 1 cage measuring 12 meters x 120 meters with a capacity of 25,000 to 28,000 chickens.

Table 1. Estimated Business Capital for Broiler Chicken Farming in Close House Cages

Investment Type	Vol		Unit price (Rp)	Total price (Rp)
1. Chicken Coop 12x120 meters				300,000,000
2. Warehouse 12x6 meters				50,000,000
3. Employee Mess				100,000,000
4. Cage Equipment				
a. Drinking System	3800	point	14,500	55,100,000
b. Set Automatic Feeding	720	meters	300,000	216,000,000
c. Brooding System	1	package	25,000,000	25,000,000
d. Blower	10	set	6,750,000	67,500,000
e. Control System	2	set	8,000,000	16,000,000
f. Set Cooling System	120	meters	450,000	54,000,000
g. Set Ventilation System	1	package	54,000,000	54,000,000

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Investment Type	Vol		Unit price (Rp)	Total price (Rp)
h. Set Curtain System	3	roller	5,000,000	15,000,000
i. Electrical Panel Box	1	set	5,000,000	5,000,000
j. Lighting	130	units	180,000	23,400,000
k. 12 Kg Gas Cylinder	18	tube	513,000	9,234,000
l. Water pump				3,000,000
m. Silent 20 Generator				83,000,000
Total Equipment Cost				626,234,000
Total Estimated Investment Costs				**1,076,234,000**

The capital costs above are the costs required at the start of a broiler chicken farming business. These costs do not include land costs. Based on the results of the interview, the researcher prepared an estimate of the costs required as initial capital for a broiler chicken farming business. The biggest cost is the cost of procuring cage equipment, which is IDR 626,234.00, the cost of making the cage is around IDR 300,000,000, with the cage material still using ordinary wood. This cost will be greater if the material used is mild steel or better quality wood. Better materials will extend the useful life of the building.

3.2.2 Fixed costs (Fixed Cost)

The average depreciation cost is calculated using the straight line method, namely by dividing the costs of building cages, building warehouses, building employee mess halls and purchasing equipment by the length of use.

Table 2. Average fixed costs in one year

Types of Fixed Costs	Total (Rp)	Average Cost Per Period (Rp)	Percentage
1. Cage Shrinkage	10,000,000	1,666,667	29.77%
2. Warehouse Shrinkage	1,000,000	166,667	2.98%
3. Equipment Depreciation	18,588,000	3,098,000	55.34%
4. Depreciation of employee Mes	4,000,000	666,667	11.91%
Fixed Cost Amount	**33,588,000**	**5,598,000**	**100%**

Source: Processed Primary Data, 2022

The total fixed costs per year are IDR 33,588,000, with the average fixed costs incurred by farmers during one period ranging from IDR 5,598,000. The depreciation expense for the cage is IDR 1,666,667, obtained by considering the asset's useful life of 30 years, with a residual value of zero rupiah, this is because the cage material is mostly wood and tarpaulin. This is different from the depreciation expense for warehouses which have a greater useful life, namely IDR 166,667 for 50 years, because the warehouse material is mostly concrete. Likewise, the depreciation expense for the employee mess is IDR 666,667, which has a useful life of 50 years. The largest value of fixed costs comes from equipment depreciation costs or 55.34% of total fixed costs, namely IDR 3,098,000, with a useful life of 30 years.

3.2.3 Variable Costs (Variable Cost)

Variable costs or what are called non-fixed costs are usually defined as operational costs in the production process whose size is influenced by the scale or quantity of production.

These costs are incurred due to the use of resources in producing output, in the form of: DOC costs, feed, VOV (vaccines, medicines, vitamins), electricity costs, fuel (fuel oil), husks, gas, additional vitamins, allowances food costs, labor and security costs. Some variable costs are provided by partner companies and some are borne by the farmer. This is not in accordance with research conducted by Gobel, 2022, which states that all variable costs are borne by the company. Variable costs during one period can be reviewed in the table below:

Table 3. Variable Costs in one year

Types of Variable Costs	Total (Rp)	Average Cost Per Period (Rp)	Percentage
A. **Company Provided**			
1 DOC	1,159,300,800	193,216,800	20.04%
2 Feed	4,317,242,500	719,540,417	75.02%
3 Medicines, Vitamins & Vaccines	63,189,288	10,531,548	1.10%
Amount A	5,539,732,588	923.288.765	96.26%
B. **Provided by Breeder**			
1 16,000 watts of electricity	42,500,000	7,083,333	0.74%
2 Cage Crew (ABK) x 2 People	71,206,000	11,867,667	1.24%
3 Head of Cage x 1 Person	-	-	-
4 Children Arrest x 10 People	-	-	-
5 BBM (Solar)	2,910,000	485,000	0.05%
6 Husk	46,283,900	7,713,983	0.80%
7 Gas 12 Kg	17,955,000	2,992,500	0.31%
8 Additional Vitamins	12,000,000	2,000,000	0.21%
9 Worker Meal Allowance	14,350,000	2,391,667	0.25%
10 Cleanliness	2,100,000	350,000	0.04%
11 Social	6,000,000	1,000,000	0.10%
12 Security	-	-	-
Amount B	215,304,900	36,884,150	3.74%
Total A+B	**5,788,625,488**	**964.770.915**	**100%**

Source: Primary data processed, 2022

The table shows that costs are differentiated into variable costs provided by the company and costs provided by the breeder. In one year the feed costs incurred amount to IDR 4,317,242,500, this is the largest variable cost incurred by farmers, namely 75.02% of the total variable costs or 74.58% of the total production costs. This high weekend fee is adjusted to the number of livestock and the harvest period.

By ignoring the variable costs of labor as head of the stable, which is carried out by the owner of the farm as well as the caretaker of the Islamic boarding school, the costs of labor as a captive child, which is used as additional labor at harvest time and is carried out by the students, as well as security costs which are not incurred because they are double in labor costs as a stable boy and also helped by the prayers of the students. Variable costs of IDR 2,100,000 are the smallest nominal costs for cleaning costs, namely 0.04% of the total variable costs.

3.3 FINANCIAL ANALYSIS

When production starts, at that time the farmer will incur production costs starting from the moment the chicks (DOC) enter as a sign of the start of production activities in the cage concerned, then at that time the production costs in the cage will begin to be formed. Data on the average costs incurred by broiler chicken breeders, in this case the Darussalam Islamic boarding school, during 2022 are presented in table 6. During one year, breeders can harvest six times with a rearing period of around 48 days.

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After the harvest period, the cage will be cleaned thoroughly and must be emptied for some time. It is recommended that the cage rest period be at least 14 days starting from the time the cage is finished harvesting and sprayed with disinfectant. The aim of cleaning the cage is to restore the carrying capacity of the cage and the environment that has been used for a period. So it is very important to clean, disinfect and empty the cage completely. Revenue from broiler chicken farming is the amount of production multiplied by the price per unit of product produced in the form of broiler chickens and manure. The price of chicken in this study was determined at the beginning of the cooperation contract, so it was not influenced by the prices prevailing on the market. If the average price of broiler chickens in the market is higher than the average contract price, then the partner company will buy at a price higher than the standard contract price, as regulated in the cooperation contract. To obtain a feasibility analysis of this broiler chicken farming business, benefits or revenues are needed within 1 year or 6 harvest periods. Calculation and detailed analysis of production quantities and selling prices for broiler chickens to obtain revenue results can be seen in the following table:

Table 4. Total revenue for one year

No	Description	Amount	Total Rp
A. Partner			
1	Chicken Sales	137,933 Heads	6,196,333,240
2	IP	-	-
3	Mortality	-	20,297,657
4	Adjustment	-	-
5	FCR	-	58,862,813
6	Additional DOC Discount	-	-
7	Additional Discount Feed	-	-
	Amount of Revenue From Partners		6,275,493,710
B. Outside Partners			
1	Sales of Chicken Manure Fertilizer	5,255 Sacks	34.159.107
2	Feed Sack Sales	9,201 Sacks	11,041,200
2	Sale of Dead Chickens		-
	Number of Revenues Outside Partners		45,200,307
	Total Receipts		6,320,694,018

Source: Primary data processed, 2022

The main source of income for this broiler chicken farming business comes from selling the chicken harvest to partner companies. Breeders are not allowed to sell to other parties because marketing is included in the cooperation contract, so that breeders can focus on managing the care of broiler chickens. In one year of production, breeders were able to produce 137,933 broiler chickens, with a chicken sales value reaching IDR 6,196,333,240. Apart from the proceeds from selling chickens, farmers can also receive operational bonuses from partner companies, which will be given if the farmer is able to achieve good conditions, according to the company's assessment. Based on the results of the plasma income recapitulation report (RHPP) for each period, the types of bonuses received by farmers are in the form of:

1. Bonus Index performance (IP) which is the success rate of broiler chicken production in one period. During 2022, breeders have not succeeded in obtaining this bonus.
2. Mortality Bonus, is a bonus given to breeders because the mortality rate for livestock kept <Manual Management CP 707 standard is not >5%. During 2022, breeders managed to get a mortality bonus 4 times. With a total mortality bonus of IDR 20,297,657.

3. The FCR Bonus is a bonus given to breeders whose FCR values follow the FCR standards that have been agreed with the Corporation. During 2022, breeders managed to get the FCR bonus 5 times. With a total FCR bonus value of IDR 58,862,813.
4. Discount feed is given to breeders if the use of feed provided is no more than the agreed standard. During 2022, breeders have not succeeded in obtaining this bonus.
5. DOC discounts are given to breeders if during the first week of maintenance the number of DOC that die does not exceed the standard. During 2022, breeders will not receive this bonus.

Apart from partner companies, farmers also gain profits from selling chicken manure and feed sacks to the local community. Farmers use manure husks as organic fertilizer. The sales of chicken manure husks for one year reached IDR 34,159,107, with a total of around 5,255 sacks. Chickens that die during the rearing period are not sold and only planted.

3.3.1 Income

Income in this research is the difference between revenue and production costs that occur during 1 year with 6 harvest periods. The income from this broiler chicken farming business can be seen in the following table.

Table 5. Total income of breeders for one year

Period	Reception Rp	Production cost Rp	Income Rp
1	1,057,068,621	944.795.981	112,272,640
2	1,169,689,753	1,041,294,059	128,395,694
3	1,126,585,857	999,482,066	127.103.791
4	924.469.177	876,201,595	48,267,582
5	995,123,400	930,471,827	64,651,573
6	1,047,757,211	996,379,960	51,377,251
TOTAL	6,320,694,018	5,788,625,488	532,068,530

Source: Primary data processed, 2022

The amount of income received by the broiler chicken farming business using this student empowerment program is determined by the performance of the chickens produced. The number of chickens does not guarantee a good income for the farmer. In table 7 it can be seen that the highest income was obtained by breeders in the 2nd period, with total income of IDR 128,395,694, this value was obtained from revenue of IDR 1,169,689,753 minus production costs in the same period of IDR 1,041,294,059, while the lowest income received by breeders in the 4th period with total income of IDR 48,267,582, which was obtained from the reduction in revenue of IDR 924,469,177 and production costs of IDR 876,201,595. According to business owners, the factors that determine the amount of income received are the type of DOC and maintenance management carried out. The provision of medicines, vaccines and vitamins provided by partner companies is not always sufficient to support chicken performance, therefore, farmers have to pay additional costs to purchase supplements to increase chicken performance. Farmers must have knowledge and experience in broiler chicken rearing management and this is supported by the ability of cage crew (ABK). With good competence possessed by crew members supported by more advanced equipment technology in close house model cages, it will generate the income desired by breeders and also partner companies.

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Figure 2. Broiler Chicken Farming Income Graph in 2022
Source: Primary data processed, 2022

Therefore, in the day-to-day management of the cage, it cannot be completely handed over to the students because the students who take part in the management do not really understand it. After attending several training sessions, students will have a better understanding of good cage management, and can be entrusted with greater responsibilities. The feasibility analysis carried out in this research is intended to determine the financial feasibility of the broiler chicken farming business in the student empowerment program with a business scenario for 1 year so that it is known whether the broiler chicken farming business is financially feasible to run. The analysis technique used to see the financial feasibility of a business is by using the Net Present Value (NPV), Benefit Cost Ratio (BCR), Internal Rate of Return (IRR), and Payback Period (PP) method, the results of which are shown in Table 6 below.

Table 6. Feasibility analysis of broiler chicken farming business, 2022

NO	Information	Results	Mark	Decision
1	*Net Present Value*(NPV)	Rp. 316,719,165,	> 0	Worthy
2	*Benefit Cost Ratio*(BCR)	1.74	>1	Worthy
3	*Internal Rate of Return*(IRR)	25%	>10.5%	Worthy
4	*Payback Period*(PP)	1.93 Years	< 15 Years	Worthy

Source: Primary data processed, 2022

3.3.2. Net Present Value (NPV)

In table 6 above, it can be seen that with a credit interest rate of 9.3%, the broiler chicken farming business obtained an NPV value of IDR 316,719,165. The NPV of the broiler chicken farming business obtained is greater than 0 so it can be concluded that the broiler chicken farming business with the student empowerment program is feasible to run. These results are in line with research (Gandhi, et al., 2024) which states that a business is said to be feasible if the NPV value is greater than 0 (NPV>0).

3.3.3 Benefit Cost Ratio (BCR)

Based on the analysis results in table 12, the BCR value for 3 years starting 2020-2022 is obtained with a value of 1.74. With a PV Cost of IDR 801,652,893. Which means that every expense of Rp. 1 will result in receipts of Rp. 1.74. According to the investment criteria, the broiler chicken farming business with the student empowerment program shows a BCR > 1, meaning it is suitable for development. In accordance with research results (Bakhtiar, et al., 2023) if the BCR value is > 1 then the business is considered feasible to run.

3.3.4 Internal Rate of Return (IRR)

An IRR value of 25% also means that investing in broiler chicken farming with the student empowerment program is more profitable than investing in bank deposits which can only provide a

profit of 10.5%. In line with research results (Cahyani, et al., 2023) that if the IRR percentage > the applicable interest rate, then the business is worth running.

3.3.4 Payback Period (PP)

The calculation results show that the payback period for broiler chicken farming is 1.93 years, which is less than the specified business scenario, namely 10 years. The calculation results show that the payback period is faster than the specified time, this is possible due to the use of equipment that uses fully automatic technology so that the livestock capacity that can be cultivated in each period can be greater. In accordance with research (Fikrianti, et al., 2023) that the return on capital in closed house cages with an automatic system is faster than a semi-automatic one.

3.4 BUSINESS SENSITIVITY ANALYSIS

3.4.1 Changes in Feed Prices

One very important factor in the broiler chicken farming business is feed. Feed costs are the largest costs incurred by farmers each period. In research (Akbar, 2022), it was concluded that feed is a significant production factor and influences broiler chicken production results. In the broiler chicken farming business with this student empowerment program, feed costs are 74.58% of the total production costs. The following is an analysis of farmer income if there is an increase in feed prices of 5%, 10% and 15%.

Table 7. Income Analysis of Increased Feed Prices

Feed Prices	Reception Rp	Production cost Rp	Income Rp
Normal	6,320,694,018	5,767,456,588	553,237,430
Up 5%	6,320,694,018	5,983,318,713	337,375,305
Up 10%	6,320,694,018	6,199,180,838	121,513,180
Up 15%	6,320,694,018	6,415,042,963	-94,348,945

Source: Primary data processed, 2022

Table 8. Analysis of Business Sensitivity to Increases in Feed Prices

Analysis Appropriateness	Mark	Sensitivity Analysis		
		Go on 5%	Go on 10%	Go on 15%
NPV	Rp. 316,719,165	IDR 9,608,767	-Rp. 306,596,811	-Rp 1,771,443,873
IRR	25%	9.71%	2.27%	Not feasible
Payback Period	1.93 Years	3.16 Years	8.78 Years	-11.31 Years
B/C Ratio	1.74	1.49	0.95	-1.19

Source: Primary data processed, 2022

With a 15% increase in feed prices, the broiler chicken farming business is not feasible to run. The NPV value decreased to negative, namely -Rp. 1,771,443,873, the IRR value was not calculated because the livestock business did not make a profit every year. BCR and payback period also show results below the criteria, namely -1.19 and -11.31 years. Then, with a 10% increase in feed prices, the broiler chicken farming business still made a profit but in drastically reduced numbers. It takes a longer payback period, namely 8.78 years. Based on the results of the NPV value of -Rp. 306,596,811, IRR 2.27% and BCR of 0.95, this broiler chicken farming business is considered not feasible to run. Furthermore, with an increase in feed prices of 5%, an NPV value of IDR 9,608,767, IRR 9.71%, BCR 1.49 and a payback period of 3.16 years were obtained. So if there is an increase in feed prices of 5%, this broiler chicken farming business is considered still feasible to run

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3.4.2 Changes in Labor Costs

Another factor that greatly influences the success of a broiler chicken farming business is labor. Reliable workers will be able to manage the broiler chicken farming business well. If the use of sophisticated and modern equipment is not accompanied by good quality workforce, it will be in vain. Apart from that, in this research labor costs should be taken into account because the labor used mostly comes from students. The following is an analysis of the income received by farmers if there is an increase in labor costs of 5%, 10% and 15%

Table 9. Analysis of Income Against Increases in Labor Costs

Cost Labor	Reception Rp	Production cost Rp	Income Rp
Normal	6,320,694,018	5,767,456,588	553,237,430
Up 5%	6,320,694,018	5,771,016,888	549.677.130
Up 10%	6,320,694,018	5,774,577,188	546,116,830
Up 15%	6,320,694,018	5,778,137,488	542,556,530

Source: Primary data processed, 2022

Table 10. Analysis of Business Sensitivity to Increases in Labor Costs

Analysis Appropriateness	Mark	Sensitivity Analysis		
		Go on 5%	Go on 10%	Go on 15%
NPV	Rp. 316,719,165	IDR 307,754,964	Rp. 298,790,764	IDR 289,826,564
IRR	25%	24.8%	24.4%	23.9%
Payback Period	1.93 Years	1.94 Years	1.95 Years	1.97 Years
B/C Ratio	1.74	1.73	1.72	1.70

Source: Primary data processed, 2022

From the results of the analysis of the increase in labor costs relative to income, it was found that the income received by farmers was reduced, but it was still profitable, assuming the income obtained was constant. With an increase in labor costs of 5%, 10% and 15%, breeders earn income of IDR 549,677,130, IDR 546,116,830 and IDR 542,556,530, respectively, in a year. Furthermore, the results of the sensitivity analysis of the broiler chicken farming business to increases in labor costs of 5%, 10% and 15% show that the broiler chicken farming business is still feasible to run. According to the criteria of a BCR value <1 and an NVP value>0, it is considered that the broiler chicken farming business is still profitable and feasible to carry out even though there is an increase in labor costs. Overall, in all analyzes of the feasibility of investing in a broiler chicken farming business with this student empowerment program, there will be an increase in the level of sensitivity with changes in feed prices and an increase in labor. This condition is experienced because these two components are the core factors in influencing the cash flow in or out of the broiler chicken farming business.

4. CONCLUSION AND SUGGESTIONS

4.1 CONCLUSION

The broiler chicken farming business in the Islamic boarding school empowerment program in Langkat Regency obtained a net profit of IDR 532,068,530, in one year with 6 harvest periods, so the average profit for 1 period was IDR 88,678,088. The results of the financial feasibility analysis obtained an NPV value of IDR 289,770,507, a BCR value of 1.74 and an IRR of

25%, so that according to the feasibility criteria, this business is considered feasible to run. The payback period (PP) value is 1.93 years, smaller than the specified business scenario, namely 10 years. Sensitivity analysis obtained with an increase in feed prices of 5% and 10%, farmers still receive income of IDR 337,375,305 and IDR 121,513,180 for a year. Meanwhile, with a 15% increase in feed prices, farmers experience a loss of IDR 94,348,945 in a year. The results of the financial analysis for feed price increases of 10% and 15% show negative NPV values, IRR values below the criteria and BCR values < 1, which means the business is not feasible to run. Furthermore, the effect of increasing labor costs by 5%, 10% and 15% on income is that farmers earn income of IDR 549,677,130, IDR 546,116,830 and IDR 542,556,530, in a year. The results of financial analysis by calculating the NVP, IRR and BCR values also show that this business is still feasible to run.

4.2 SUGGESTION

The broiler chicken farming business using a partnership system is very dependent on the core company in obtaining chicken seeds. The government needs to make fair policies for breeders and partners so that each party does not feel disadvantaged. Monitoring also needs to be carried out so that the quality of chicken seeds and animal feed distributed to farmers is received in accordance with the agreement and price paid by the farmer. Breeders should prepare for all possibilities related to production factors. The most influential things, such as feed, must be anticipated in advance, such as increases in feed prices that can be overcome by using other cheaper feed mixtures. The condition of seedlings that are still unstable at maturity must also be considered for maximum production results. Initial treatment when the DOC arrives in the cage as well as providing additional supplements is very necessary.

REFERENCES

Abbasi, IA, Ashari, H., Ariffin, AS, & Yusuf, I. (2023). Farm to Fork: Indigenous Chicken Value Chain Modeling Using System Dynamics Approach. 1–19.

Aji, JMM, Rondhi, M., Suwandari, A., Hapsari, TD, Januar, J., Yanuarti, R., & Rok. (2023). Determinants of Cost Inefficiency and Farmer Performance in Broiler Contract Farming. Tropical Animal Science Journal, 46(3): 382-388.

Bakhtiar, A., Mazwan, M. Z., Shodiq, WM, & Kombe, LE (2023). Financial Feasibility of Layers Farming Business. SOCA: Journal of Agricultural Socioeconomics, 17(3): 149-163.https://doi.org/10.24843/SOCA. 2023.v17.i03.p01

BPS. (2022). Broiler Chicken Population by Province (Head) 2020-2022. Jakarta: Central Statistics Agency.

Cahyani, AAAR, Susrusa, KB, Arisena, GMK, & Bakhthtiar, A. (2023). Financial Feasibility of Greenhouse Hydroponic Vegetable Business. SOCA: Journal of Agricultural Socioeconomics, 17(3): 206-221. https://doi.org/https://doi.org/10.24843/SOCA.2023.v17.i03.p05

Clemmons, E. A., Alfson, K. J., & Dutton, J. W. (2021). Transboundary animal diseases, an overview of 17 diseases with potential for global spread and serious consequences. Animals, 11(7), 1–58.https://doi.org/10.3390/ani11072039.

Indonesia, 8(2): 164-174.

Fikrianti, Y., Priyanto, B., & Aini, FN (2023). Comparison of Financial Analysis of Semi-Automatic and Automatic Closed House Cage Systems at the Dekem Tengah Sawah Chicken Farm. Indonesian Agribusiness Journal (Journal of Indonesian Agribusiness), 11(2): 422-431.https://doi.org/10.29244/jai.2023.11.2.422-431

Gandhi, P., Nindyantoro., Ladityarsa, R., & Ryadi, Y. (2024). The Financial Feasibility Of Rhizome Cultivation During Covid-19 Pandemic. Agrimor (Journal of Dry Land Agribusiness), 9(1): 60-68.https://doi.org/10.32938/ag.v9i1.2170

Gobel, RA, Kalangi, LS, & Manese, MAV (2022). Analysis of Income of Broiler Chicken Farmers Using Open House System and Closed House System in North Minahasa Regency. Zootec, 42(2): 317-326.

Halik, RAF, Rifin, A., & Jahroh, S. (2019). The Influence of Partnerships on the Performance of Micro and Small Tofu Enterprises in Indonesia. Indonesian Agribusiness Journal, 8(2): 164-174.https://doi.org/10.29244/jai.2020.8.2.164-174

Indrawan, D., Cahyadi, ER, Daryanto, A., & Hogeveen, H. (2020). The role of farm business type on biosecurity practices in West Java broiler farms. Preventive Veterinary Medicine 176.https://www.sciencedirect.com/science/article/abs/pii/S0167587718308481?via%3Dihub.

Lailina, IY, Sunarto, & Sudatmanto, B. (2020). Analysis of Broiler Chicken Farming Business with Partnership Patterns (Case Study of PT. BAS) Wajak Malang. Journal of Agriextension, 19(1): 78-86.

Mahardika, Angga. (2022). Implementation of Entrepreneurship Education in Developing the Life Skills of Santri at the Al-Ishlah Bondowoso Islamic Boarding School. Thesis. Islamic Religious Education Study Program, Postgraduate Kiai Haji Achmad Siddiq State Islamic University. Jember.

Mahardika, CBDP, Djunina, & H., Hadisutanto, B. (2021). The Effect of Various Litter Ingredients on the Performance of Broiler Chickens and Litter Quality. Journal of Animal Science, 21(1): 10-17.

Nauratudini. (2022). Analysis of partnership patterns and profit sharing systems for broiler farming in Keude Mane Village, Muara Batu District, North Aceh Regency. Journal of Agricultural Science, 6(2): 82-88.

Queenan, K., Cuevas, S., Mabhaudhi, T., & Chimonyo, M. (2021). A Qualitative Analysis of the Commercial Broiler System, and the Links to Consumers' Nutrition and Health, and to Environmental Sustainability: A South African Case Study. Frontiers 5(May).
https://doi.org/10.3389/fsufs.2021.650469.

Umiarti, AT (2020). Broiler Rearing Management. Denpasar: Larasan Library.

Wang, CY, Chen, YJ, & Chien, S,F. (2021). Industry 3.5 to empower smart production for poultry farming and an empirical study for broiler live weight prediction. Computers & Industrial Engineering
151(1).https://www.sciencedirect.com/science/article/abs/pii/S0360835220306136