

COMPARISON PROFIT BUSINESS CATTLE CHICKEN *CLOSED HOUSE* AND *OPEN HOUSE* CAGE LAYERS (CASE STUDY IN PAYAKUMBUH)

Rudy Kusuma ¹⁾, Rahmat Fajri ²⁾, Erwin ³⁾

¹⁾ Lecturer Program Studies Farm University Tamansiswa Padang

²⁾ Student Program Studies Farm University Tamansiswa Padang

³⁾ Lecturer Program Studies Farm University Tamansiswa Padang

Jl. Tamansiswa No. 09 Padang

*Corresponding author: rudy.kusuma@gmail.com

ABSTRACT

This research was conducted in the *Closed House* Taram farm located in Jorong Sipatai, Bukik Limbuku, Harau District, Lima Puluh Kota Regency and *the Open House* Sari Farm located on Jalan Belubus, Bukit Apik, Kenagarian Sungai Talang, Guguak District, Lima Puluh Kota Regency. The purpose of this study was to determine the costs, revenues, profits, and to determine the profit ratio in the *closed house cage*. and *Open House* in Payakumbuh . The research method used is a case study method with a quantitative approach. The data used are primary data obtained from interviews, and secondary data obtained from government agencies and corporate institutions and literature. which is relevant to this research.

The results of the study during one period showed that mortality *Close House* cage 0.07 while *Open House* 0.08. The calculation of the economic aspects of the cage *Close House* Total production cost Rp.17,934,489,876, Revenue Rp.24,734,338,525, and income Rp.6,799,848,649. and for *Open House cage* Total production cost Rp. 16,357,916,976, Revenue Rp.21,817,412,685 and income Rp. 5,459,495,709.

Close House cages have higher profits compared to *Open House cages*. With the same population of 38,000, the difference is Rp. 663,590,752 in the *Closed House cage* the profit is Rp. 6,123,086,461 while in the *Open House cage* Rp. 5,459,495,709 The results show that layer chickens kept in *Closed House cages* showed very good production performance while the *Open House cage* showed good production performance

Key Words: Layer Chicken, *Closed House*, *Open House* , Comparison profit.

INTRODUCTION

Egg-laying chicken farming is one of the agricultural sub-sectors that plays an important role in meeting the need for animal protein. based on data from the Central Agency Statistics (BPS) 2022, from In 2021-2022, there was an increase in egg consumption from 2,047 kg/capita to 2,265 kg/capita. The increase in demand must be supported by an increase in egg production. According to data from the Central Statistics Agency in 2022, egg production in West Sumatra for 2 years Lastly (2021-2022) there has been an increase from 303,344.86 tons to 389,413.95 tons.

In Payakumbuh is one of them that implements a *closed house cage system* in Lima Puluh District city, with scale business 250,000 heads in *closed house cages* and 38,000 *open house cages* with 2 cage systems, namely *open house cage units* with maintenance scale of 4,000 chickens/unit and 6 *closed house cages* with scale maintenance 45,000 tail chicken/Unit.

closed house cages requires higher production costs because *closed house cages* require certain construction and machines to regulate humidity. Costs and Income of laying hen farmers will be related to the use of cages with the *Closed House System and Open House System*. Thus, a calculation is needed regarding the income received by laying hen farmers who use the *Closed House and Open House cage systems*.

RESEARCH METHODS

Place And Research Time

This research was conducted in a *closed house* at Taram Farm in Payakumbuh. the farm that located in Jorong Sipatai, Bukik Limbuku, Harau District, Lima Puluh Kota Regency. And Sari's *open house* farm is the farm that is at on Belubus Bukit Apik road, Sungai Talang Village, Guguak District, Lima Puluh Kota Regency. This research will be conducted on April 1 until 01 May 2024.

Method Study

Studies Case is research that is more directed or focused on certain properties that not applicable general, usually limited by case, location, place

certain and certain times (Dicky, et al.

(2019) **Research Respondents**

Based on the scope of the research, the informants in this study were financial staff, stable supervisors, administrative staff and stable workers in Payakumbuh .

Source Data

The data used in this study are primary data and secondary data.

Research Variables

The research variables consist of 2 variables, namely, the profit variable and the profit comparison variable of the *Closed House* and *Open House Layer Chicken Farming Business* .

Analysis Data

The data obtained were analyzed by use method descriptive analysis. Numbers, descriptions and explanations served in table form. As for things Which will

analyzed, namely:

a). Total Cost Production /Total Cost (TC)

$$TC = TFC + TVC$$

Information:

TC : Total Production Cost

TFC : Total Fixed Cost

TVC :Total Variable Cost

b). Total Reception / Total *Revenue* (TR)

$$TR = Q \times P$$

information:

TR= Total reception

Q = amount production

Total P = selling price

c). Income

$$Pd = TR- TC$$

Information:

Pd = Income Which obtained by farmers (Rp/Year)

TR = Total reception obtained by farmers (Rp/Year)

TC = Total costs incurred breeder per period

d). *Break Event Point* (BEP).

BEP Price:

Total Production Cost (TC)

Jumlah Produksi (Q)

RESULTS AND DISCUSSION

Profile Business *closed house* And *Open House*

Currently in Payakumbuh has operate 250,000 laying hen population in *closed houses* and 38,000 in *open houses* where the production is prioritized for the needs of bakeries, hotels and supermarkets.

In Payakumbuh there are two types of cages, namely *Closed house* and *open house*. Chicken farming business Taram farm *closed house* egg layer in Payakumbuh is the farm that located in Jorong Sipatai, Bukik Limbuku, Harau District, Lima Puluh Kota Regency. And Sari's *open house* The farm is a livestock farm located on Jalan Belubus Bukit Apik, Sungai Talang Village, Guguak District, Lima Puluh Kota Regency.

In Payakumbuh, it started from a small farm of laying hens in 1993 in Payakumbuh City, West Sumatra. Then it developed into CV. Agung Abadi on year 2002, And in a way officially became a limited liability company in 2011 until now. Currently Payakumbuh continues to develop itself in the fields of trading, distribution, and production of livestock and agribusiness commodities

with different market segments .

Aspect Technical

a). Seeds

Seeds Which used in the egg-laying chicken farming business is the Lohman Brown strain, the Lohman Brown strain is included in the medium type of laying hen. High production, good immunity and has resilience to climate which is good is the reason why using lohman Brown as a seed in his egg-laying chicken business. Egg production has an average of 89.55%. This is in accordance with the opinion of Ardiansyah (2012), laying hen production is between 80-91% of the total population.

b).Feed

The feeding system used in For phase starter given in a way *ad libitum* and giving For phase grower And

Layer feed is given twice a day on o'clock 08.00 And o'clock 14.00. This is in accordance with Abbas's opinion (2004) states that effective feeding and efficiently done twice a day. The feed given is processed factory feed, Insufficient feeding will causes growth retardation which will impact egg production due to lack of adequate nutritional intake. The feed content used for layer chickens aged 19 weeks to culmination is 12% water content, 14% ash, 16.5% crude protein, 3% crude fat, fiber rough 6%, Calcium 3.5 – 4 %, Phosphorus 0.45%, Phytalase enzyme 400 FTU/kg, Amino acids (lysine 0.80%, Methionine 0.40%, Methionine + cystine 0.67%, Tryptophan 0.18%, Threonine 0.55%). For feed starter age 0-3 weeks need 20% protein, energy metabolic 3000kka/kg, calcium 0.9%, phosphorus 0.6%, amino acid lysine 1.1%, amino acid methionine 45%, while for grower feed aged 4-19 weeks requires 17.5% protein, 2800 kka/kg metabolic energy, calcium 0.9%, phosphorus 0.5%, Sour amino lysine 0.9%, sour amino methionine 0.4%. Drinking water is given at each phase using a *nipple ad libitum*.

b). Governance Maintenance

Starter maintenance is a critical maintenance stage, where the cage and equipment must be hygienic. In starter maintenance, a heating device (brooder) is prepared. Feed is given after the DOC has been in the cage for 4 hours. At the age of 7 days, the beak is cut so that the chicken does not experience stress and so that cannibalism does not occur in the chicken. In this grower period, the chicken grows proportionally at the age of 8 weeks. In the layer period, the chicken is moved to an individual cage and lays eggs at the age of 16 weeks.

c).Housing

The cages on the laying hen farm consist of 8 *closed house cages* consisting of of 2 starter cages and 6 layer cages, For the *open house cages* consisting of 8 layer cages. For the starter cages, cages are used with system postal with litter. And equipped with equipment that is already automated.

c). Prevention Disease

Sanitation is an effort to prevent disease that is done because sanitation is an easy method to implement. Sanitation that is done includes sweeping the entire

floor of the cage every day, cleaning the walls and roof if Already Lots there is spider web, spraying throughout the cage and workers must be clean before entering each cage. Preventive measures are also carried out, namely by carrying out vaccinations and giving vitamins which are carried out routinely since

the Economic Aspect

a). Production cost

DOC chickens to layers. Vaccination is one way to control infectious diseases by creating immunity body.

For vaccines, they are injected by livestock health experts. While giving vitamins with the application of drinking done by the stable workers at the prescribed dose.

d).Marketing

Marketing in the business of laying hen farming is something that must be considered. Based on the results of research that has been done, marketing the results of livestock directly to supermarkets, mini markets, bakeries, collectors and so on.

As for cost production Which issued pen *closed house* And *Open House* : Fixed Cost of *Close House* and *Open House*

Cost Still		
Type	<i>Closed House</i> Total (Rp)	<i>Open House</i> Total (Rp)
Seeds	2,405,400,000	2,166,000,000
Depreciation pen	266,666,667	Rp133,333,333
Depreciation equipment	63,866,667	Rp. 37,810,000
Cost power Work	736,000,000	880,000,000
Tax 1%	247,343,385	202,312,517
Flower Bank 3%	742.030.155	606,937,551
Total	4,461,306,873	4,026,393,401

Cost cage variable *Close House* And *Open house*

Cost variable		
Type	<i>Closed House</i> Total (Rp)	<i>Open House</i> Total (Rp)
Cost feed	12,886,490,000	11,930,085,000
Cost fuel	17,601,000	7,548,000
Cost Drug and Biosecurity	22,083,903	21,409,729
Cost Egg Tray	321,732,983	285,091,950
Electricity	224,075,117	86,188,896
Rope	1,200,000	1,200,000
Total	13,473,183,003	12,331,523,575
Total Production cost	17,934,489,876	16,357,916,976

- Cost Still

Fixed costs are costs that do not change changeable (constant), The amount spent is the same whether the production obtained is large or small. This cost will arise even if the company does not produce anything. Based on the two tables, it can be seen that the largest fixed costs are spent on depreciation of the cage and followed by depreciation of the equipment, there is a significant difference due to price And The equipment used in each cage is different. Fixed costs for *closed house cages* amount to Rp.

4,461,306,873 with population 42,200 heads. while at *the open house* as big as Rp. 4,026,393,401 with a population of 38,000, the difference in costs incurred is due to the *closed house cage* using automatic equipment so that it requires high costs. While the *open house* still uses manual equipment.

- Variable Costs

Based on the table, it can be seen that variable costs are the largest costs of total production costs, namely approximately 98%. Feed is cost the largest of all production

costs

The total cost of feed spent on *closed house cages* is Rp. 12,886,490,000 or 73% of total production costs. And the *Open House cage* as much as Rp.11,930,085,000 or 75%.

The high cost of feed incurred is because both cages use commercial feed from the factory. As we know, commercial feed as a high price, which causes high variable costs incurred for feed. In accordance with the opinion of Dicky et al. (2019). Total production costs are the costs incurred to produce a product, obtained

Reception production pen *closed house* by calculating the cost of purchasing seeds, renting cages and equipment, feed costs, medicine costs, labor costs and others.

b). Reception

Income from the egg-laying chicken farming business is obtained from the sale of eggs, manure and sale of retired chickens. As for the acceptance chicken breed egg layer *closed cage house* And pen *open house* during one production period is as follows:

Total Revenue			
Sale Egg (Rp)	Sale of Dirt (Rp)	Sale Chicken Rejected(Rp)	Total (Rp)
22,948,233,325	167,165,000	1,618,940,200	24,734,338,525

Reception production pen *open house*

Total Revenue			
Sale Eggs (Rp)	Sale of Dirt (Rp)	Sale Retired Chicken (Rp)	Total (Rp)
20.231.251.685	163,555,000	1,422,606,000	21,817,412,685

closed house cage business with a chicken population of 42,200 chickens during one period is Rp. 24,734,338,525. The largest income obtained from sale eggs namely as big as

Rp.22,948,233,325.

Meanwhile, in the table the amount of revenue from *open house cages* with population chicken as much as 38,000 tail during one period, which is Rp

. 21,817,412,685. The largest income was obtained from egg sales, which was Rp. 20,231,251,685.

c). Income / Net Revenue (NR)

a). Closed House

Income pen *closed house*

Total Reception			
Egg Sales (Rp)	Sale Dirt (Rp)	Sale Chicken Retired (Rp)	Total (Rp)
22,948,233,325	167,165,000	1,618,940,200	24,734,338,525
Total Production cost			
Cost Still (Rp)		Cost Variable (Rp)	
2,055,906,873		15,878,583,003	
Profit (Total Acceptance – Total cost Production) (Rp)			
24,734,338,525- 17,934,489,876			6,799,848,649

Income pen *open house*

Total Reception			
Egg Sales (Rp)	Sale Dirt (Rp)	Sale Chicken Retired (Rp)	Total (Rp)
20.231.251.685	163,555,000	1,422,606,000	21,817,412,685
Total Production cost			
Cost Still (Rp)		Cost Variable (Rp)	
1,860,393,401		14,497,523,575	
Profit (Total Revenue – Total Cost Production) (Rp)			
21,817,412,685 - 16,357,916,976			5,459,495,709

Based on the table, the amount of profit or gain obtained from the *closed house cage* during one period is Rp. 6,799,848,649, which is considered high for scale maintenance as big as 42,200 heads. When compared to study Colorful (2006) profit obtained during a year is 11.54 percent of the total production costs, which is Rp. 12,869,256,430 and a profit of Rp. 1,484,966,518 with a business scale of 70,000 heads. The high profit obtained from the *closed house cage* due to Because

The cage used is a *closed house cage* with a fully automatic system which is more ideal for egg-laying chicken farming.

According to Soekartawi (2003), livestock business income is the difference between income and all costs. Based on the research results the income earned can be known per *open house* during the period of Rp.5,459,495,709 This shows that this farm is making a profit in the very good category in its production.

Comparison Pen *closed house* And *open house* (2021- 2023)

Type	<i>Closed House</i>	<i>Open House</i>
Cost Production	17,934,489,876	16,357,916,976
Reception	24,734,338,525	21,817,412,685
Profit	6,799,848,649	5,459,495,709
Mortality	0.07	0.08
BEP	424,988	430,471

The table shows that the production cost of a *closed house cage* is Rp. 17,934,489,876 with a population of 42,200 or Rp. 424,988 per head and an *open house* of Rp. 16,357,916,976 heads. with a population of

38,000 or Rp.430,471 per head. And the income from *closed house* cages is Rp. 24,734,338,525 or Rp.586,122 per tail For pen *open house* Rp.21,817,412,685 or Rp.574,142 per tail

Comparison Profit Chicken Layer On Pen *closed house* And *open house* (2021-2023)

Net Revenue (NR)	42,200 (Rp)	38,000 (Rp)
<i>Closed house</i>	6,799,848,649	6,123,086,461
<i>Open house</i>	-	5,459,495,709
Difference		663,590,752

closed house cages have higher advantages compared to pen *open house* with the population of 38,000 has a difference of Rp.663,590,752. On *closed house* cage profit per chicken Rp. 161,134 while in pen *open house* Rp.143,671 with a difference of Rp.17,463

d). Break Even Point (BEP) for Closed House and Open House Cages Production.

BEP price production pen *closed house*.

$$\text{BEP price} = \frac{TC}{Q}$$

$$= \frac{17,934,489,876}{42,200} = 424,988$$

BEP Price production pen *open house*

$$\text{BEP price} = \frac{TC}{Q}$$

$$= \frac{15,852,135,684}{38,000} = 430,471$$

For BEP, the production price of *closed house cages* is Rp. 424,988 and for *open house cages*, the figure is Rp. 430,471. Both broiler chicken farming businesses

use *closed house cages*. And *open house* This You 're welcome profitable but the profit from *closed house cages* is higher than *open house cages* .

CONCLUSION AND SUGGESTIONS

Conclusion

Based on the research results and the discussion that has If this is done, then the income from *the closed house* is Rp. 6,123,086,461 and *the open house* is Rp. 5,459,495,709. It can be concluded that the profit from the *closed cage Layer chicken farming business* is Rp. 5,459,495,709. *house* more big from *open cage house* at odds Rp.663,590,752 with the same number of livestock namely 38,000 heads.

Suggestion

To get maximum benefits, it is better to have an *open house cage* switch to *closed house cages* .

BIBLIOGRAPHY

- Abbas, MH 2004. Poultry Livestock Management. Textbook of the Faculty of Animal Husbandry, Andalas University, Padang.
- Ardiansyah, et al. 2012. Comparison of Performance of Two Strains of Medium Type Roosters Given Commercial Broiler Rations. Lampung: University of Lampung Press.
- Body center Statistics. Production Egg Chicken race egg layer According to Province West Sumatra 2021-2022 Accessed from the site <https://www.bps.go.id/id/statistics-table/2/NDkxIzI=/production-of-egg-laying-hens-according-to-province.html>
- Dickey, P., HA Zaki, Y., Emmy, UA 2019. Analysis of Income from Broiler Chicken Farming Business Egg layer in City of Palangkaraya Raya Case Study Eagle Farm Poultry Shop And Animals Independent Farm Journal Social Agricultural Economics Vol. 14 No. 2. Palangka Raya University. Palangka Raya (Setiawati et al., 2016)
- Sukartawi. 1995. Analysis Business Farmer. University Indonesia Press. Jakarta
- . 2006. Theory Economy Production with Main Point Discussion Analysis Cobb Douglas Production Function. Raja Grafindo Persada. Jakarta
- Warni. 2006. Analysis of Jumaidi Farm Egg-Laying Chicken Business. Thesis, Faculty of Animal Husbandry, Andalas University. Padang