

## INCOME OF PARTNERSHIP BROILER FARMING: A COMPARATIVE ANALYSIS OF OPEN AND CLOSED CAGES IN BANYUMAS DISTRICT

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### ABSTRACT

Broiler farming with a partnership pattern aims to improve technical and economic performance. Technological advances have led to the development of cage types in broiler rearing from open house to close house. The purpose of this study was to determine the production cost structure and income of broiler farming in partnership pattern using open house and close house cages in Banyumas Regency. The basic method used was descriptive quantitative. The method of determining the sample was carried out using snowball sampling, with a total of 30 farmers using open house cages and 30 farmers using close house cages who followed the partnership pattern. This research uses farming analysis to obtain income, namely reducing the amount of revenue with the costs incurred. The results showed that farmers who used close house cages earned higher income than farmers who used open house cages. The Covid-19 pandemic has an impact on the income of broiler farms in Banyumas Regency, especially those using open house cages, because the income during the Covid-19 pandemic was negative - Rp1,608,487/1,000 birds/year for open house cages and Rp2,08,756/1,000 birds/year for close house cages. The post-Covid-19 period showed an increase in income in both types of cages, which amounted to Rp2,945,502/1,000 heads/year for close house cages and Rp2,138,703/1,000 heads/year for open house cages.

Keywords: Broiler partnership, income, open house, close house

### INTRODUCTION

A potential livestock commodity to be developed in Indonesia is *broilers*. Broilers have a relatively fast harvest age of 4-5 weeks with a body weight between 1.2-1.9 kg/head (Setianto *et al.*, 2020). Central Java Province is the province with the largest amount of chicken meat production in Indonesia in 2022 with production reaching 742,948 tons (BPS, 2022).

Banyumas Regency is one of the regencies in Central Java Province with broilers as the leading livestock, accounting for 73% of the total livestock population in the regency (BPS, 2023).

Cage type is one of the most important poultry livestock management to consider. Advances in technology have made broiler farmers currently use open or close house cages. Close house cages are characterized by closed walls and are usually made of permanent materials using technology so that they have good ventilation, but the cost of making them is more expensive than open house cages. While open house cages are traditional cages, the walls are open and the temperature in the cage depends on the natural conditions around the cage environment (Nuryati, 2019).

The Covid-19 pandemic entered Indonesia starting in March 2020, which affected many business sectors in Indonesia, including the livestock sector. The existence of the Large-Scale Social Restrictions (PSBB) policy, in addition to

having an impact on the health of the productive age population, also affects broiler farming businesses such as restrictions on community activities and limited transportation access, causing a decrease in people's purchasing power for chicken meat (Kusumastuti & R. Widiati, 2022).

According to the Ministry of Agriculture (2021), broiler meat consumption decreased by 16.26% in 2020 compared to 2019. The Covid-19 pandemic has also caused the price of broiler meat in Banyumas Regency to decrease by 2.04% and caused losses for broiler farmers (BPS, 2023). The movement of chicken meat prices due to Covid-19 means that farmers must be prepared to deal with changes that can occur at any time.

Covid-19 cases slowly began to be controlled in mid-2022 (World Health Organization, 2023). The price of chicken meat in Banyumas Regency in 2022 began to increase, from an average of IDR 34,018/kg in 2021 to IDR 35,347/kg in 2022 (BPS, 2023a). This return to normal situation is known as the *next normal* or recovery. The Covid-19 pandemic and recovery period has made changes to the financial aspects of broiler farming, especially in Kabupaten Banyumas.

The broiler farming business cannot be separated from various problems that can occur during the maintenance period, such as the high cost of farm production facilities (feed, *day old*

chick (DOC), vaccines and medicines) that are not balanced with price stability (Azmi *et al.*, 2019). Therefore, there is a need for cooperation in the form of a partnership pattern between broiler farmers and companies with large capital.

The purpose of the partnership is to improve the technical and economic performance of broiler farms (Wantasen *et al.*, 2021). The problem then arises whether plasma farmers can utilize *input* guarantees, marketing *output* guarantees and technical guidance provided by the core company and run their business to obtain high income.

Due to the convenience of various production guarantees and differences in financial aspects during the pandemic and post-Covid-19 period, it is important to know the income of plasma farmers who use a partnership pattern for both farmers who use open and close house cages.

Income is the difference between all farmer receipts and all production costs incurred (Soekartawi, 1995). Previous research on farm income has been conducted by Sembiring *et al* (2021), which found that red chili commodities have the highest income compared to melons and watermelons on farms on sandy land in Kulon Progo Regency. Research conducted by Nurlaelah *et al* (2022) found that the Covid-19 pandemic had an impact on the income of broiler farmers in partnership patterns in Maros Regency.

The novelty of this research compared to previous research is that no previous research has examined the business income of broiler farms in two conditions of the pandemic and post-Covid-19 pandemic with two types of open house and close house cages. Based on this background, the objective of this study is to determine the business income of broiler farmers in partnership patterns in Banyumas Regency in open and closed house cage types in both pandemic and post-Covid-19 pandemic periods.

**METHOD**

This research uses a basic quantitative descriptive method. Descriptive research methods have the aim of making a systematic, factual and accurate description of the facts and properties of a particular research object (Bungin, 2017). Quantitative research is research whose data is

expressed in numerical form and analyzed with quantitative techniques (Alfianika, 2018).

The research was conducted in Banyumas Regency in 11 sub-districts, with the largest sample of broiler farmers in Kembaran, Baturaden, Somagede, Sumbang and Kalibagor sub-districts. The Covid-19 pandemic period is from March 2020 to November 2022 (World Health Organization, 2023). Data for the production period from July to August 2023 was used for the post-Covid-19 period. The sample was taken with a *snowball sampling* technique of 60 broiler farmers who follow a partnership pattern, 30 farmers who use *open house* cages and 30 farmers who use *close house* cages. The method used in this research is the survey method, primary data obtained through interviews with the help of questionnaires.

Income is the difference between all receipts and all expenses (production costs incurred) from business activities. The formula to determine farm income is (Soekartawi, 1995):

$$Pd = TR - TC.....(1)$$

Where:

Pd = Income (Rp)

TR = Total revenue (Rp)

TC = Total cost (Rp)

**RESULTS AND DISCUSSION**

Broiler farmers in Kabupaten Banyumas ranged in age from 19 to 67 years old with an average age of 41 years old. The majority (96% of farmers) belonged to the productive age group. According to Febrianto *et al* (2018), which states that young and productive farmers have strong physical abilities and longer working hours than older ones.

The majority of broiler farmers in Banyumas Regency have been educated for more than 12 years or have studied at the tertiary level, either diploma three (D3) or undergraduate (S1), as many as 37% of the total farmers. Education can affect the financial literacy knowledge of broiler farmers. This is in accordance with research conducted by Arianti and Azzahra (2020), that the level of formal education has a positive effect on the financial literacy of entrepreneurs in conducting their business.

Table 1. Farmer characteristics

Characteristics	Breeders	Percentage (%)
<b>Age (Year)</b>		
19-30	10	17
31-40	20	33
41-50	19	32
51-67	11	18
<b>Education</b>		
Not graduated from elementary school	1	2
SD	6	10

Characteristics	Breeders	Percentage (%)
SMP	11	18
HIGH SCHOOL	20	33
D3 / S1	22	37
<b>Breeding Experience (Years)</b>		
2-10	36	60
11 - 20	15	25
21-30	9	15

Source: Primary data processed (2023)

Farmers who use *open house* cages are more experienced with an average breeding experience of 11 years, compared to farmers who use *close house* cages with an average breeding experience of 10 years. Breeding experience is a farmer's knowledge obtained through routine daily activities or events experienced (Febrianto *et al.*, 2018). Breeding experience according to Sumarno *et al.* (2013), helps farmers in making business decisions and supports the success of their business.

**Operational Costs**

Operational costs consist of fixed costs and variable costs. The average fixed costs of farmers using close house cages are higher than those using open house cages both during the pandemic and

post Covid-19 period. The high average fixed costs in close house cages are due to the higher depreciation costs of cages and equipment compared to open house cages. Depreciation cost is the largest fixed cost component. On average, depreciation costs reached 67% of total fixed costs (Table 2).

Variable costs (non-fixed costs) that have the largest proportion in close house and open house cages are feed costs, which are 75% and 78% respectively during the Covid-19 pandemic, and 74% and 75% during the post-Covid-19 period. This is in line with research conducted by Wantasen *et al.* (2021) which states that feed is the largest variable cost component, reaching 74% of total variable costs.

Table 2. Average cost of broiler farming in Banyumas Regency/1,000 birds/year

Component	Covid-19 Pandemic Period		Post Covid-19 period	
	Close House	Open House	Close House	Open House
<b>Average Scale of Business (Cattle/Year)</b>	100.572	19.532	158.070	32.802
<b>Fixed Cost (Rp)</b>				
Electricity and Water (Rp)	811.876	236.603	516.556	140.886
PBB (IDR)	3.494	8.283	2.223	4.932
Depreciation (Rp)	1.695.207	1.448.225	1.078.575	862.348
Others (Rp)	118.005	240.665	75.081	143.305
<b>Variable Cost (Rp)</b>				
DOC (Rp)	7.547.820	7.659.909	7.486.215	8.297.665
Feed (Rp)	29.108.473	35.375.111	28.004.020	30.235.485
Medicine and Vitamins (Rp)	493.641	504.130	471.118	450.277
Outside Family Labor (Rp)	486.643	724.473	464.440	678.762
Others (Rp)	1.122.553	971.069	1.071.337	852.786
<b>Total Cost (Rp)</b>	41.387.713	47.168.468	39.169.565	41.666.445

Source: Primary data processed (2023).

**Reception**

The average revenue per 1,000 birds per year for broiler farmers with close house cages is lower than for farmers using open house cages both during the pandemic and post Covid-19 (Table 3). Although the average mortality rate of chickens in farmers using open house cages is higher at 6% compared to 3% in close house cages, the average

selling price of broilers in farmers with open house cages is higher. The average price of chickens during the Covid-19 pandemic for farmers using open house cages was IDR 20,436 with an average weight of 1.95 kg, while farmers with close house cages was IDR 20,138 with an average weight of 1.84 kg.

Table 3. Average revenue of broiler farms in Banyumas Regency/1,000 birds/year

Revenue Component	Covid-19 Pandemic Period		Post Covid-19 period	
	<i>Close House</i>	<i>Open House</i>	<i>Close House</i>	<i>Open House</i>
Average Scale of Business (Cattle/Year)	100.572	19.532	158.070	32.802
Chicken Sales (IDR)	42.810.901	44.978.340	41.400.306	42.349.395
Bonuses (Rp)	571.461	208.339	630.278	1.262.015
Sack (Rp)	64.106	129.190	84.482	119.755
Chicken Manure (Rp)	-	244.112	-	73.983
Total Revenue	43.446.469	45.559.980	42.115.067	43.805.148

Source: Primary data processed (2023).

The average price of chicken during the post Covid-19 period for farmers using *open house* cages was IDR 20,878 with an average weight of 1.86 kg, while farmers with close house cages was IDR 20,106 with an average weight of 1.84 kg. The high selling price of chickens in farmers with *open house* cages is because there are no farmers who partner with integrator companies. Integrator companies are companies that produce their own *day old chick* (DOC).

### Revenue

Table 4 shows the average income earned by broiler farmers with close house cages per 1,000 birds per year is greater than farmers with open house cages, both during the pandemic and post Covid-19. Farmers with open houses obtained very low income values and even negative values during the Covid-19 pandemic. This is supported by research conducted by Nurlaelah et al. (2022) and Armelia et al. (2020), which stated that the Covid-19 pandemic had an impact on reducing the income of broiler farmers in Indonesia. According

to Sain *et al.* (2021), in their research explained that losses due to the Covid-19 pandemic had an impact on the disruption of the broiler supply chain due to the obstructed distribution of DOC, feed and medicines as well as operational losses. Therefore, the sustainability of broiler farming can be threatened due to decreased productivity and income of farmers.

The income of farmers with open house cages during the Covid-19 pandemic is negative due to uncertain harvests such as postponement of harvest time and cancellation of *chick in* due to core companies losing markets due to restrictions. During the Covid-19 pandemic, the average rearing time was 40 days for close house cages and 42 days for open house cages. During the Covid-19 recovery period, the average rearing time was 37 days for each cage type. The delay in harvest time causes a reduction in the rearing period in a year. Normally farmers can harvest six periods, the existence of the Covid-19 pandemic farmers can only harvest four times a year.

Table 4. Average income of broiler farms in Banyumas Regency/1,000 birds/year

Component	Covid-19 Pandemic Period		Post Covid-19 period	
	<i>Close House</i>	<i>Open House</i>	<i>Close House</i>	<i>Open House</i>
Average Scale of Business (Cattle/Year)	100.572	19.532	158.070	32.802
Revenue (Rp)	43.446.469	45.559.980	42.115.067	43.805.148
Total Cost (Rp)	41.387.713	47.168.468	39.169.565	41.666.445
Revenue (Rp)	2.058.756	(1.608.487)	2.945.502	2.138.703

Source: Primary data processed (2023).

Delays in harvest time cause farmers to increase operational costs because harvesting often exceeds the usual harvest time. This is supported by research conducted by Armelia *et al.* (2020), that the Covid-19 pandemic has an impact on broiler farmers including additional costs for culling *day old chick* (DOC), compensation costs, traffic control costs, disruption of the partnership industry, and loss of market opportunities. The additional operational costs due to the delayed harvest are charged to the farmers, the core company does not bear the additional operational costs incurred by the farmers, so in this case the farmers are very disadvantaged.

Plasma farmers do not have strong bargaining power. The rules and prices in the contract agreement are determined by the nucleus company, so farmers can only accept and act as workers for the nucleus company. The high price of agronomic inputs also puts farmers at a disadvantage. According to Kusumastuti & R. Widiati (2022), the price of feed sold by the nucleus company to plasma farmers is quite high so that farmers do not get maximum profit. Therefore, this company needs to make improvements in determining the contents of the contract agreement, both determining bonuses,

compensation, chicken selling prices and input prices so that there is justice for both parties.

According to Kusumastuti & Widiati, (2022), the core company also needs to cooperate with government agencies as a controller of the partnership program. The government can act as a facilitator for farmers to negotiate with the nucleus company to improve the contents of the contract agreement by adding an agreement on chicken rearing time. If the nucleus company harvests more than the agreed time, the additional operational costs can be borne together.

## CONCLUSIONS

Partnership broiler farming has a higher income value if it is carried out using close house cages, both during the pandemic and during the post-Covid-19 pandemic period. The Covid-19 pandemic is classified as an extraordinary event, which causes the business income of broiler farmers with open house cages to be negative. The role of the government can be as a partnership facilitator to encourage justice for both parties (nucleus company and farmers), especially proposing the contents of the contract agreement with the provisions of the chicken rearing period at the farmer level / harvest schedule by the nucleus company i. The results of the higher income of farmers with close house cages, can be obtained recommendations if they want to do broiler farming with a partnership pattern, it is more recommended to use close house cages.

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