



Availability of Production Inputs in Broiler Partnership in Sleman Regency Yogyakarta

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ABSTRACT

Broiler has now developed a pattern of partnership. This study aims to determine the characteristics of farmers, businesses and the availability production input in broiler partnership. The research was conducted in Sleman Regency. Location in 3 sub-districts i.e. Pakem, Cangkringan, and Ngemplak. The number of samples of 64 respondents and the core of 5 companies was performed by the purposive method. The analysis was carried out descriptively and the results of the analysis were written in tabular form. The results showed that farmers belonged to productive age (45 years), education senior high school (43.42%), experience (11.15 years) and basic work as farmers. The business scale was 6014 heads/period with a maintenance period of 35-36 days / periods / year. The maintenance system was an open house (81.58%). In the partnership agreement, the availability, amount, and price of input come from the core. A relationship between business characteristics and the provision of production inputs in the broiler partnership pattern and the results were still not optimal. The improvement and review of the contents of the contract needs to be reviewed to generate benefits and justice.

Keywords: broiler, production input, partnership system

INTRODUCTION

The poultry sector, apart from being a source of animal protein, also creates jobs in line with the increase in population [1]. Broiler meat products dominate in supplying national meat needs, supported by upstream industries, namely feed, Day Old Chicken, livestock health facilities and downstream industries, namely large and strong broiler meat processing. On the other hand, almost all broiler farming businesses are carried out by farmers with limited scale and small capital. Ngozi and Chinonso [2] stated that some of the constraints from the supply side are limited capital, availability of Day Old Chicken and feed, disease, mortality, transportation networks, and labor.

Currently, the broiler poultry industry has developed a pattern of business cooperation between large industries in the upstream and downstream sectors and small industries for smallholder farmers, known as the partnership pattern. Based on the Regulation of the Minister of Agriculture of the Republic of Indonesia Number 13/PERMENTAN/PK.240/5/2017 concerning husbandry business partnerships, it is explained that in order to increase the scale and efficiency of livestock businesses, the economic capacity of farmers or business actors, market access, competitiveness, and building mutual synergies. Profitable and fair, it is necessary to establish a husbandry business partnership. In the partnership system, the supply of livestock production facility comes from the core which results in the purchase price of livestock production facility and fluctuating output prices. Based on the Decree of the Minister of Agriculture of the Republic of Indonesia No. 3035/Kpts/PK010/F/03/247 due to an oversupply of DOC which resulted in a decrease in the price of live bird broilers below the cost of production, the government set a policy of reducing DOC production nationally by 5 million birds/kg from Parent Stock broiler breeders or as much as less than 8% of the total production in each broiler PS breeder. Primary cooperates with PS broiler farmers as a provider of livestock production facility. The size of the business scale is decisive in terms of providing feed and medicines.

The dependence of farmers on DOC procurement, feed, and other production inputs because farmers to have lower bargaining power due to price determined core. In addition, breeders are required to sell broiler chickens to companies based on a predetermined price under contract[3]. Research on the supply and use of production inputs based on the identification of the contents of the contract system partnership agreement in the context of livestock business efficiency, mutual benefit, and justice is much needed.

The population of broiler in Yogyakarta was increased from 51,245,333 heads to 51,674,388 heads in 2020, with a growth rate of 0.84% [3]. Yogyakarta Special Region Province is an area that has the potential for broiler farming. This condition should be used as an opportunity for entrepreneurs in the livestock sector to develop broiler farming businesses, both large and small scale businesses.

Based on the background described above, to support the monitoring and evaluation of broiler partnerships, it is necessary to research how the rules for providing input to farmers who follow the broiler partnership pattern are conducted by taking sample locations in Sleman Regency, Yogyakarta Special Region. The purpose of the study was to identify the characteristics of the respondents, the characteristics of the business and the number and types of inputs provided to broiler breeders with a partnership system. This research can be used as a basis for perfecting a mutually beneficial partnership pattern system.

It is hoped that this research can be used as a basis for perfecting a mutually beneficial partnership pattern system.

MATERIALS AND METHODS

Location

The study was located in Sleman Regency, Yogyakarta Special Region, where the population of broiler in Sleman Regency in 2018 was 1,538,180 heads and in 2019 there were 1,532,700 heads [4]. The study was conducted in July-September 2019.

Data Collection

Samples of farmer respondents were taken from sub-districts which are broiler production centres, in three subdistricts i.e. Pakem, Cangkringan, and Ngemplak Districts, Sleman Regency, Yogyakarta. There were 64 farmer respondents with details from Pakem District as many as 24 samples, Cangkringan 24 samples, and Ngemplak 16 samples. The core company sample is 5 companies that have a minimum of 10 plasmas. Determination of breeder was carried out purposively based on the consideration of participating in a partnership for a minimum of 1 year, while in-depth interviews were carried out on field extension officer informants.

Data Analysis

Primary data collection used a survey method followed by interviews with breeders and field extension officers using a questionnaire tool. The obtained primary data include the profile of the farmer, the characteristics of the business, the characteristics of the livestock, and the pattern of partnership that is run between the investor and plasm.

RESULTS AND DISCUSSIONS

Cooperation Contract Pattern Agreement

Based on primary data from interviews with field extension officers at each core located in Sleman Regency, where each core has a different agreement. The results of the study show that the contents of the broiler partnership contract agreement are generally divided into 5. There are 1) based on the term of the agreement, 2) procurement of livestock production facility 3) livestock production facility sales to plasma, 4) purchase of livestock from plasm, and 5) others, namely the risk of mortality, bonus, and non-compliance with the contract (Table 1).

Judging from the supply of livestock production facility, the price plus vaccine is more expensive than non-vaccine DOC. Types of feed BR, GM, and S most widely used plasma had the highest prices, respectively BR, S, and GM. The price of vitamins and vaccines is determined from the supplier. The dominant supplier for feed and DOC is PT. Charoen Pokphand, vitamins, and medicine is PT. Mensana and PT Medion and vaccines are PT. Medion and PT. SanbeFarma (Table 2).

Table 1. Contents of the Cooperation Agreement Contract in the Partnership System

Kind of an Agreement	Contents of the Contract
Duration of the agreement	1 period, multiple periods or 1 year
Procurement of livestock production facilities Sales of production facilities to plasm	1. Plasm must use sapronak from party I (core) 2. There is an agreement on the number of DOCs and the schedule for DOC entry <ul style="list-style-type: none"> • DOC: vaccines and non-vaccines (IDR/head) • Concentrated feed: IDR/kg (net) • Medicines: <i>price list</i> for Central Java area (Net) + 10% Value Added Tax
Pricing and purchase of livestock from plasm	1. The price agreement is the standard price which can change at any time if there is a change in the price of DOC and livestock feed. 2. There are 2 standard prices, namely based on FCR (Feed Conversion Ratio), namely the determination of the purchase price (IDR/kg) based on the difference between the company's standard FCR value and the actual at the farmer and the market price, namely the purchase price based on the difference in the market price. 3. The purchase price will be increased by IDR/kg, if the mortality rate and FCR are the same or lower than the standard. 4. If the chicken is sick, rejected or the cage is empty, then there is a price cut by the nucleus or basket 5. When harvesting, chickens must be purchased by the nucleus in collaboration with baskets. 6. The maximum collection of chickens by baskets must be equal to DO. If it is greater than DO, the farmer bears the payment through income deductions. Recapitulation of Plasma Maintenance Results contains details of all costs used during maintenance and receipts from chicken sales and FCR bonuses, Index Performance, and market prices.
Others	1. Bonus setting: <ul style="list-style-type: none"> a. Plasma will get an operational maintenance bonus up front of IDR x/head given to H+1 chick in b. Plasm will get a market bonus if the actual market price is above the contract price by 20% of the difference between the actual market price minus the contract price c. Bonus is given if the IP (Performance Index) value is higher than the standard set by the core. $IP = \frac{\text{power on (\%)} \times \text{weight (kg)} \times 100\%}{FCR \times \text{selling life (days)}}$ d. Plasm that uses a close house will be given operational assistance in the amount of IDR/kg 2. Determination of sanctions <ul style="list-style-type: none"> a. If there is a difference between the number of chickens recorded in the report and the reality at the time of harvest, the plasm is required to replace the difference in the number of chickens (number of chickens lost x body weight x contract price) b. If there is a difference in the amount of feed (forage lost) between what is on the list of feed stocks and the physical reality in the field, the plasm is obliged to replace the difference in the amount of feed by calculating the amount of feed lost (kg) x 2 x contract price. <ul style="list-style-type: none"> - Yield profit is paid to plasm as much as 70% of the total maximum profit 1 week after harvest, 30% is given 2 weeks after harvest c. Feed damage is borne by the farmer. d. If there is additional DOC in the cage, it will be removed from the cage

Table 2. Types of Input Supply to Plasm

Input Type	N (n=64)	%	The Supplier
DOC			
- Cobb 500	26	40.63	PT. Charoen Pokphand
- Super broiler jumbo	1	1.56	PT. Cibadak Indah Sari Farm
- Superchick			
- CP 707	5	7.81	PT. Samsung
- Lohmann MB 202	12	18.75	PT. Charoen Pokphand
- OK	11	17.19	PT. Japfa and Januputra
- Malindo feed	4	6.25	PT. KCM and PT. Jaya Poultry Source
	5	7.81	PT. Malindo
- BASS	3	4.69	PT. Samsung
- BR1, BR2	8	12.50	PP. Japfa Comfeed Indonesia
- New Hope S21	4	6.25	PT. New Hope Indonesia
- S10,S11,S12	7	10.94	PT. Charoen Pokphand
- Starfeed	2	3.13	PT. Samsung
- axle 100, hg11s	6	9.38	PT. Magic Poultry Diamond
- GM1NS	3	4.69	PT. Samsung
- 201CSM D	2	3.13	PT. Charoen Pokphand
- Goldcoins	5	7.81	PT. Indonesian Goldcoins
- Sb10,Sb11,Sb12	2	3.13	PT. Charoen Pokphand
- 8201, 8202	5	7.81	PT. Malindo
- B11MTK	9	14.06	PT. Charoen Pokphand
- PB-O	2	3.13	PT. Japfa Comfeed Indonesia
- Manyar	1	1.56	PT. Manyar Independent
- BR starter, BR crumble, BR 1 ss	2	3.13	PT. Japfa Comfeed Indonesia
- Gm1cj	2	3.13	PT. Cheil Jedang
- 7501	1	1.56	PT. Charoen Pokphand
Vitamins and Medicine			
- Enrodiaz and Enrosal	12	18.75	PT Sanbe Farma and PT Bana Mediavet
- Electrovit			PT Sanbe Farma
- Sorbitol	13	20.31	PT. SHS International
- Chlorine	9	14.06	PT. SHS International
- Maxamix and Colomix	12	18.75	PT. Mensana and PT Medion
	18	28.12	
Vaccine			
- ND and Gumboro	15	23.44	PT. Medion and PT. Sanbe Farma
- ND, Gumboro, AI	1	1.56	PT. Medion
- Vaccines from hatching	48	75.00	-

Characteristics of Respondents

To find out the potential of plasm as a business actor in a partnership pattern, then can be seen from the measurement of the characteristics of the respondents (Table 3). Table 3, it can be seen that the farmers are in the productive age, i.e. the average age is 45 years. Kurniati [5] stated that age describes the maturity level of each individual from a broiler entrepreneur and age will affect a person's way of thinking and physical ability to work. Usually, younger entrepreneurs will be stronger and work harder than older broiler entrepreneurs, besides that they will also be more receptive to innovation and more dynamic.

Table 3. Characteristics of Respondents

Component	Sleman Regency	
	Frequency (n=64)	%
Age (years)	44.83±12.36	
Formal education		
Primary school	2	2.63
Junior high school	2	2.63
High School	33	43.42
Diploma	4	5.26
Bachelor degree	23	30.26
Non-formal education		
Take the course	12	15.79
Not taking the course	52	68.42
Farming experiences (years)	11.15±8.02	
Number of family members (person)	4.08±1.16	
Main occupation		
Farmer	41	53.95
Laborer	1	1.32
Off farm	22	28.95

Education is equivalent to high school level (43.42%), while non-formal education is more than 50% of farmers raising livestock without taking courses. The higher level of education of farmers can increase the opportunity to increase their income. Fauziah *et al.* [6] stated that informal education can make it easier for farmers to receive information to improve competence. Fitriza *et al.* [7] think that the level of education and the number of positive livestock increase means that the higher the level of education and the number of livestock, the better the perception of plasm farmers about the contract agreement. The farmer's perception of the contract agreement is not significantly related to the income of plasm farmers.

The breeding broiler is the main job and is supported by family members. The size of family responsibilities is closely related to family income. This indication shows that every head of the family should try as much as possible to increase his income. The burden of family responsibilities will decrease or increase, also influenced by the number of productive workers

in the family. If the number of dependents in the family is dominated by productive age, they can participate in helping, either in the business production process or in other business fields.

Business Characteristics

In livestock farming activities, it is necessary to know how the maintenance system and technical or production parameters as well as economic parameters. It is important to know the output with the existing business characteristics. Table 4 indicated that the dominant broiler breeders choose the close house cage system. This is because farmers rent land so that the open house system is considered cheap and efficient.

Table 4. Business characteristics

Components	Sleman Regency	
	Frequency (n=64)	%
Maintenance system		
<i>Closed house</i>	2	2.63
<i>Open house</i>	62	81.58
Reason for <i>open house</i>		
Inexpensive	43	58.11
Affordable	6	8.11
Cage rental	9	12.16
More efficient	2	2.70
Low capital	2	2.70
Reason for <i>closed house</i>		
Complained by the public	1	50
Increased productivity	1	50
Reasons for choosing a partnership		
Production facilities provided by core	28	36.84
Low capital	16	21.05
Guaranteed marketing	5	6.58
Safe	9	11.84
Sapronak and guaranteed marketing	6	7.89

Table 5. Technical parameter

Component	Value
Maintenance time (days)	35.53±1.34
Business scale (heads)	6014.06 ± 3663.59
Mortality (%)	4.21±1.68
Selling weight (kg)	1.94±0.16
Feed Conversion Ratio	1.51±0.13

Judging from the technical or production parameters, the length of maintenance for broiler ranges from 35-36 days with an average business scale of 6014.06 ± 3663.59 birds so that in 1 year they can harvest 6-7 times the maintenance period (Table 5).

Livestock mortality was $4.21 \pm 1.68\%$. This is due to the lack of sanitation in cages, especially disinfectants, cages with an open house system, and the presence of CD and Gumboro diseases. The FCR value in livestock of 1.51 ± 0.13 indicates livestock productivity or body weight growth is less than optimal. Selling weight was 1.94 ± 0.16 kg/head. Based on the cooperation contract regarding the sale of livestock, live weight ranges from 1.1 -2.3 kg/head so the value of 1.94 kg/head is in the medium category.

Use of Factors of Production

The use of production inputs that have the most influence on broiler farming is feed and the use of medicines and vitamins, while not all farmers use external workers. If using labor from outside only around 1 to 2 people because the scale of maintenance is not so large. The average feeding was 2.94 kg/head while the vitamin was 5,916 g/head.

Based on the results of the analysis, it can be concluded that the use of both feed and drug inputs in the partnership system still needs to be improved. Factors that support the increase in the efficiency of broiler meat production are the number of livestock kept and the workforce. However, economically on the partnership pattern breeders, the allocation of production factors is relatively inefficient due to fluctuating prices of production factors. Carvalho *et al.* [8] stated that feed consumption has a significant and negative effect on the economic efficiency of broiler. An increase of 1 percent of feed consumption will reduce the profit of 1.12 percent because the need for feed occupies 70 to 80 percent of the total production where the need is related to the scale of production. Breeders are constrained to increase the scale of production, apart from capital; there is also no guarantee from the core about the risk of mortality of livestock.

Partnership is the merger of two or more business actors, each of which provides benefits, acts fairly, maintains cooperation, strengthens, and makes mutual agreements [9]. The broiler farming business partnership model includes three main activities, namely the supply of livestock production facilities, broiler chicken maintenance, and marketing. The core company is responsible for supplying livestock production facilities and marketing the products. Plasm farmers are responsible for raising broiler [10]. Business cooperation with a partnership system is realized in a contract that binds the parties to the agreement. The contract contains a number of clauses that must be obeyed by the parties but still have to pay attention to a number of applicable ethics and regulations [11].

The contents of the cooperation agreement contract regarding the agreement on the selling price of livestock are basically in terms of the procurement of livestock production facilities plasm is required to buy from the nucleus both DOC, drugs, and vaccines and the purchase price follows the contract price. In terms of sales, there are 3 approaches based on standard prices (the difference between FCR and market price differences), based on the initial DO, and discounted prices from baskets. In addition to the contents of the contract, usually the

core company also provides technical guidance through the field extension officer who is tasked with assisting during the maintenance process and supervising plasm performance. The factors that encourage farmers to follow the partnership pattern are the availability of livestock production facilities, available experts, working capital from the core, and guaranteed marketing [12].

The dominant broiler farmer chooses the open house cage system. Types of broiler cages based on the type of wall (ventilation) can be divided into open house cages and closed house cages. The open house systemic a cage whose open walls are usually made of wood or bamboo, while the closed house system is closed and usually made of permanent materials with the use of high technology. The closed house system has good ventilation, which is able to reduce the impact of high humidity, by utilizing the "wind chill" effect in the cage. Broiler maintenance in closed house and open house systems has an effect on feed consumption, body weight and FCR. Closed house system, feed consumption, body weight and FCR is better than open house. The ambient temperature and humidity, which have been regulated in a closed house system, have resulted in increased broiler comfort which has an impact on increasing feed consumption and metabolic processes [13].

The closed house system has advantages such as controlling temperature, humidity and wind speed, as well as improving the performance and comfort of chickens thereby increasing the quality and quantity of production. Closed house cages can minimize adverse effects inside and outside the cage environment and can increase chicken productivity. The purpose of building a closed house is to provide healthy air for livestock (good ventilation system) that is, the air contains a lot of Oxygen and releases harmful gases such as carbon dioxide and ammonia as soon as possible, provides ideal and comfortable temperature and humidity for livestock, and minimizes stress levels in livestock [14]. The closed house system can minimize environmental risks so that chicken productivity can be increased. The closed house system is suitable to be applied in Indonesia because of the fluctuating Indonesia climatic conditions so that the growth of chickens can be optimal and reduce the mortality rate of chickens [15]. The open house system is a cage that does not meet the environmentally friendly aspects because air pollution in the environment around the farm cannot be minimized and disease in chickens is not controlled. In the open house system, there is direct human contact with chickens so that it can cause stress to the chickens which will affect the productivity of chickens [16].

Judging from the technical parameters or production, mortality is still high. One of the evaluation materials for maintenance and at the same time as one of the determining factors for the success of broiler maintenance is by calculating the number or percentage of broiler mortality. The percentage of mortality during the maintenance period should not be more than 4.00% [17] so it can be said that mortality in the study site is high. The FCR value at the study site indicates that livestock productivity or body weight growth is less than optimal. The FCR value in livestock is 1.51 ± 0.13 . Triawan *et al.* [17] stated that the FCR value in broiler is 1.43. Altitude has a significant effect on FCR and the highest FCR is found in the highlands with a ratio of 1.50 compared to the medium lands of 1.48 and the lowlands of 1.36[18]. Pakem and Cangkringan sub-districts are high lands and the FCR value is in the high category. Feed

Conversion Ratio is the ratio between feed consumption and body weight gain. Adequate feeding with adequate feed quality and appropriate body weight will result in low FCR.

Therefore, to increase business efficiency through improving livestock productivity as measured by the value of FCR. This is because the FCR value is the main requirement in determining the output of the partnership system. This does not agree with the research results [21] that the FCR cannot be considered as a good index for making decisions about the optimal growth period. Growth disaggregated by sex can be recommended for broilers because male and female broilers have different optimum growth periods

In general, some of the problems experienced in the supply of “sapronak” during the pandemic, namely the core company was not punctual in sending livestock production facilities, especially feed and medicine. The number of core companies that do not have a business or are not integrated with the animal feed, breeding, hatchery, medicine, and livestock product processing industries cause prices and availability to be uncertain and have an impact on changing “sapronak” quality standards and poor quality. Core companies need to prioritize services that plasm farmers feel are still lacking regarding the quality of DOC, feed, and the accuracy of delivery of livestock production facilities. The core company must select from several livestock production facilities manufacturers to find the best quality. Livestock production facilities delivery must be appropriate and timely based on the contract agreement so that farmers are not disappointed and the production process is delayed. The company must also give awards to farmers who are able to achieve the production targets set by the company to motivate farmers to try to be better. The distance between the cages and one another will influence the cost of the livestock production facilities and will matter in terms of time and energy efficiency. The solution is to make a plan in choosing a visiting route and good mentoring. The Covid-19 pandemic resulted in several employees being exposed to the Covid-19 virus which resulted in having to undergo isomerism it had an impact on hampering the distribution of “sapronak” both in feed delivery or oversupply of livestock production facilities being sent. The solution is to carry out good management of workforce organization, improve communication between employees, and prepare backup workers in an emergency.

CONCLUSION

Parameters of livestock production and the use of production inputs have not been used efficiently. Provisioning of inputs is completely core dependent. Therefore, it is necessary to have a mutually beneficial partnership policy between investors and plasm. Partnership companies also need to invite government agencies as controllers of the partnership program cooperation process. On the other hand, field extension workers need to socialize to farmers about cage sanitation to reduce mortality and how to calculate FCR and IP. This is with the aim that farmers can be motivated to get maintenance bonus so that livestock productivity can increase

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