The feasibility of potential cooperative-based partnership broiler agribusiness for sustainable chicken meat self-sufficiency in North Maluku

S Hartanto¹, C Sugihono¹, Y Hidayat¹ and E Prayitno²
¹Researcher, Assessment Institute for Agricultural Technology North Maluku, Ministry of Agriculture, Indonesia
²Lecturer, Faculty of Animal and Agriculture Sciences, Diponegoro University, Indonesia
*
Corresponding author, Email: hartanto.aisya@gmail.com

Abstract: Broiler meat is a crucial protein source in North Maluku. However, it is imported by 80% from other regions. This study was aimed to analyze the feasibility of potential cooperative-based partnership broiler agribusiness in North Maluku. This study was carried out from July to August 2020. Primer and secondary data were utilized in this study. The survey was employed to collect the primer data. The respondents were poultry shop owners, broiler farmers, chicken meat sellers, and broiler meat importers. Data were analyzed using financial analyses (net revenue, revenue cost ratio (RC ratio), and payback period). The study showed that the number of 55,000 broilers per month must be raised to attain chicken meat self-sufficiency in North Maluku. The capacity of 1 farmer as plasma was 1,500 broilers per month due to lacking good farming practice. Financial analyses showed that the farmer would have net revenue 5,782,667.00 IDR a month for 1,500 population, RC ratio 1.13, and payback period 0.82 years. Cooperative would have net revenue 133,470,756 IDR per month per 55,000 broilers, RC ratio 2.62, and payback periods 4.22 years. The study concludes that cooperative-based partnership broiler agribusiness is feasible to be developed due to it has affect positively the economy sector in North Maluku.

1. Introduction

Broiler meat has a vital role in North Maluku as a protein source. It is consumed as many as 77,611 tonnes a month [1]. On the other hand, broiler meat is categorized as inflation-causing goods due to 80% of the demand is supplied from other provinces. It induces losing the potential financial value of as much as 2 billion IDR a month.

Broiler farmers in North Maluku are smallholders, whereby they have a small capital, lack of management knowledge, lack of processing facilities, and limited market access [2]. The supply chain for broiler farming business and frozen broiler meat is monopolized by a poultry shop. Thus, the farmer has less bargaining power to set the price of the broiler meat. However, the broiler farming business in North Maluku is profitable [3].

The partnership system is implemented in broiler farming owing to it is able to address the limited resources of the farmer [4]. The broiler farming partnership system results in a mutual benefit for the enterprise and smallholders [5]. The smallholders of broiler farming have a high income in the partnership system [6].

The cooperative farming model is a model of empowering farmers through groups, by carrying out the engineering of economy, technology, added value, and social [7]. The cooperative farming increases a net revenue of the farmer by 38% [8]. However, it is no report about the implementation of cooperative-based partnership broiler agribusiness in Indonesia. We assume that cooperative-based partnership broiler agribusiness has a mutual benefit, increases farmer revenue, and enhances broiler production in North Maluku. The study was aimed to identify and analyze the feasibility of potential cooperative-based partnership broiler agribusiness model in North Maluku.
2. Materials and Methods
This study was carried out from July to August 2020. Primer and secondary data were utilized in this study. The survey was employed to collect the primer data. The respondents were poultry shop owners, broiler farmers, chicken meat sellers, and broiler meat importers. Data were analyzed using financial analyses (net revenue, revenue cost ratio/RC ratio, and payback period). The RC ratio is employed to analyse the financial feasibility [9].

3. Results and Discussion
3.1. The proposed model
This study showed that poultry shop had a major role in poultry production in North Maluku Utara. It supplied DOC, feed, and frozen broiler meat. However, it adversely affected farmer production due to the poultry shop monopolized feed, fresh and frozen broiler meat markets. It had a conflict of interests, whereby the poultry shop sold DOC and feed exorbitantly and bought broiler from the farmer in cheap owing to it had no agreement of partnership. The farmers had a limited market because they had no processing facility. In addition, the mining companies in North Maluku were a crucial market due to they need tonnes of broiler meat a month to provide meals for their employees. Broiler meat importers supplied the needs of the companies. However, the importers did not buy the meat from farmers because they had no hygienic processing standards.

Therefore, our study had the result in the proposed model of cooperative-based partnership broiler agribusiness to boost broiler production and enhance the quality product of broiler meat in smallholders (Figure 1). The cooperative has a role as a poultry shop, whereby it handles up and downstream in the broiler business. It provides day old chicken, feed, veterinary medicines, and processing facilities. The capital for cooperative is obtained from farmers’ dues, loans, and grants. The cooperative invests in transportation, warehouse, and poultry slaughterhouses. On the other hand, the farmer invests in housing cages, feeders, and drinkers. The cooperative employs an extension agent to counsel the farmer. The farmers role rearing and selling broiler to the cooperative. To achieve 77,611 tonnes a month, it needs 51,070 birds reared a period. This study showed that the capacity of the farmer to rear the broiler was 1,500 birds a period due to limited housing cage and management. Thus, it needs 35 farmers. In addition, the cooperative proceeds broiler in the poultry slaughterhouse before selling it in the market freshly or frozenly.

3.2. Financial Analysis
The financial analysis of broiler farming (farmer/1500birds/month) in the proposed cooperative-based partnership broiler agribusiness model in North Maluku is shown in Table 1. The farmer would have a
net 5,782,667 IDR per month per 1,500 broilers, RC ratio 1.13, and payback period of 0.82 years. The result indicated that the model is profitable for farmers. The farmers had revenue as much as 3,332,844.97 IDR per period and R/C was 1.02 in broiler farming partnership [5]. The broiler farming partnership system increased farmer revenue 3 times of non-partnership farmers [10].

Table 1. Financial analysis of broiler farming (farmer/1,500 birds/month) in proposed cooperative-based partnership broiler model in North Maluku

| No | Items                                                                 | Amount (IDR) |
|----|----------------------------------------------------------------------|--------------|
a   | Depreciation (House Cage and Equipment)                              | 133,333.33   |
b   | Expenses                                                              | 43,607,833.33|
|    | Day Old Chicken                                                      | 14,544,000.00|
|    | Feed                                                                 | 25,920,000.00|
|    | Vitamin and veterinary medicine                                     | 450,000.00   |
|    | Labors cost                                                          | 1,500,000.00 |
|    | Electricity, gas, bedding material                                   | 757,500.00   |
|    | Other costs (transport, housing prep)                                | 303,000.00   |
c   | Revenue                                                              | 49,390,500.00|
|    | Returns after assuming mortality 5%                                  | 49,390,500.00|
|    | Net Revenue                                                          | 5,782,666.67 |
|    | R/C                                                                 | 1.13         |
|    | Payback Period (yrs)                                                 | 0.82         |

The result showed that the proposed cooperative-based partnership broiler agribusiness model in North Maluku had economically benefits for the cooperative as an enterprise. The cooperative would have net revenue of 133,470,756 IDR per month per 55,000 broilers, RC ratio 2.62, and payback period 4.22 years. In this study, The RC ratio is higher than 1 (RC ratio > 1), which means the business model is feasible. This study indicated that the cooperative-based partnership broiler agribusiness model in North Maluku has a mutual benefit. A mutual benefit for the enterprise and smallholders is achieved by implementing the broiler partnership system [5].

Table 2. Financial analysis of cooperative in cooperative-based partnership broiler model in North Maluku (55,000 birds/month)

| No | Items                                                                 | Amount (IDR) |
|----|----------------------------------------------------------------------|--------------|
a   | Depreciation (Warehouse, Slaughterhouse, Equipment)                  | 21,215,873.02|
b   | Expenses                                                              | 82,487,770.61|
|    | Labors cost                                                          | 15,317,974.40|
|    | Operational Poultry Slaughterhouse                                   | 20,423,965.86|
|    | Other costs (bank interest, tax, transport, electricity)              | 25,529,957.33|
c   | Revenue                                                              | 216,228,526.60|
|    | Returns (benefit from DOC, Feed, Broiler meat)                       | 216,228,526.60|
|    | Net revenue                                                          | 133,740,755.99|
|    | R/C                                                                 | 2.62         |
|    | Payback Period (yrs)                                                 | 4.22         |
4. Conclusion
The cooperative-based partnership broiler agribusiness is feasible to be developed due to it has positive effects on the economic sector in North Maluku. However, further study is needed to evaluate the implementation of the model.

References
[1] Central Agency on Statistics (BPS) 2018 The National socioeconomic survey (Susenas)
[2] Hartanto S, Hendaru I H, Sugihono C, Arifin A Y and Hidayat H 2014 Proc. Int. Conf. on Sustainable Livestock Production in the Perspective of Food Security, Policy, Genetic Resources, and Climate Change (Jogjakarta: Indonesia) pp 2562-2565
[3] Hartanto S, Wardono H P and Zainiyah W 2020 Responses of Growth Performance and Feasibility of Broiler Chicken Farming Against to the North Maluku Local Feed Jurnal Pengkajian dan Pengembangan Teknologi Pertanian 23(2) pp 141-149
[4] Azizah N, Utami H D and Nugroho B A 2013 Analisis Pola Kemitraan Usaha Peternakan Ayam Pedaging System Closes House di Plandaan Kabupaten Jombang Jurnal Ilmu Ilmu Peternakan 23(2) pp 1-5
[5] Daryanto, Supardi S and Subekti E 2015 Analisis Pendapatan Peternak Ayam Ras Pedaging Pola Kemitraan Inti-Plasma Jurnal Ilmu Ilmu Pertanian 11(1) pp 92-105
[6] Ratnasari R, Sarengat W and Setiadi A 2015 Analisis Pendapatan Peternakan Ayam Broiler pada Sistem Kemitraan di Kecamatan Gunung Pati Kota Semarang City Anim. Agri. Jour. 4(1) pp 47-53
[7] Nuryanti S 2005 Pemberdayaan Petani dengan Model Cooperative Farming Analisis Kebijakan Pertanian 2(3) pp 152-158
[8] Sabbir H M, Safdar H T, Arshad S and Nasir S B 2012 Future of Cooperative Farming in Pakistan Jour. Of Bio. Agri. and Healthcare 2(6) pp 42-49
[9] Price G J 1972 Economic Analysis of Agricultural Project (The John Hopkins University Press, Baltimore)
[10] Masdar A S and Yunasaf U 2010 The Partnership of Poultry Husbandry and Its Influence of Farmer Income Jurnal Ilmu Ternak 10(2) pp 111-117