

PAPER • OPEN ACCESS

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To cite this article: A Sodiq *et al* 2019 *IOP Conf. Ser.: Earth Environ. Sci.* **250** 012050

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Improving production system of beef cattle agribusiness

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Abstract. Beef cattle agribusiness plays an important role in income generation for most farmers in rural areas of Cilacap, Banyumas, and Banjarnegara regencies. In small-holder farming systems, beef cattle production is usually closely integrated into overall food production. The potential economic benefits of the application of important technologies and improved natural resources management could be taken into account. This study described the situation of the improving livestock production system of beef cattle agribusiness in order to increase accessibility to bank, to identify characteristics of management system and constraints of accessibility to bank. This study was conducted at the farmer groups of Beef Cattle Cluster Program located at Cilacap, Banyumas, and Banjarnegara regencies. Constraints related to development of beef cattle agribusiness include lack of feeding technology, landless, lack of managing natural resources especially for forages. Implementation of technology in term of good farming practices including breeding and feeding practices could be considered for increasing feasibility and competitiveness beef cattle agribusiness.

1. Introduction

Demand for beef in Indonesia steadily increased and exceeded the domestic production [1], and it was expected to increase by 2.7% during 2010-2014 [2]. Therefore, the government in 2000 started a program to attain beef self-sufficiency by the year 2005 and shifting to years 2010 and 2014. This policy is based on consideration that Indonesia has natural resources and cattle population that relatively can be expanded to produce adequate beef for domestic consumption or even for export. To achieve that objective the government has launched a thrust policy program stipulated in animal husbandry development policy [3]. Development of beef cattle in the future should be carried out through sustainable agribusiness approach. Beef cattle farming system should be more professionally managed through application of technology innovation focusing on the aspect of business efficiency [4].

The government has set some strategies including: development of livestock farmer institution, development of livestock business and industry, optimal utilization of local resources, and providing financial support by credit and also social loan for beef cattle farmer groups. Investment and financial support are extremely important in order to accelerate the population and farm size of beef cattle farming. The accessibility beef farming getting financial from bank could be supported. This research was design to describes the situation of the improving livestock production system of beef cattle



farming in order to increase accessibility to bank, including the identified characteristics of management system and constraints of accessibility to bank faced by beef cattle farmers in Cilacap, Banyumas, and Banjarnegara regencies.

2. Methods

This study was conducted at the farmer group of Beef Cattle Cluster Program located at Cilacap, Banyumas, and Banjarnegara regencies. A survey was conducted with several approaches such as focused group discussion, in-depth interviews, and on-farm observation. All farmers of five farming group of beef cattle were selected as respondents. Livestock production system include breeding, feeding and housing management, and also constraints faced by beef cattle farmer related to obtaining credit from bank were identified. In this current study, data were analyzed using descriptive statistics.

3. Results and discussions

3.1. *Beef cattle production systems*

Animal production involves both large and small ruminants and a variety of systems integrated with crops. The systems vary as a function of agro-ecological zone and intensity of farming operations. The development of these systems has considerable potential, the benefits being associated with the complementary interactions of the subsystems in which the products are additive [1]. The prevailing animal production systems in Indonesia could be classified fall into one of three categories: (i) landless, (ii) crop-based; and (iii) rangeland-based.

In the areas of Cilacap, Banyumas, and Banjarnegara regencies, beef cattle were raised mostly within the traditional system, characterized by small-scale production (mostly 2-8 animals per farm in various physiological age). They make use of animal as function of subsistence, cash-income, security, and investment [5]. The beef cattle houses were built with available materials and generally permanent form. Communal housing was mostly located out of the farm family house, but it was near the village. Cattle for fattening and breeding purposes were raised at separated herd. This study demonstrated that the appropriate use of local feed resources and local livestock breeds requires close integration between crops and livestock within the system. The excreta (dung/feces) was used on the farm to produce fertilizer. Ruminants would continue to serve a valuable role in sustainable agricultural systems [6]. They were particularly useful in converting vast renewable resources from rangeland, pasture, and crop residues or other by-products into humanly edible food. With ruminants, land that was too poor or too erodible to cultivate becomes productive. Also, by-products were utilized and did not become a waste disposal problem. The characteristic of system and sub-system animal production in term of beef cattle production under farmer group of Beef Cattle Cluster Program are summarized in Table 1 and Table 2.

Beef cattle prices vary and depend on a number of factors including season of festival days (Eid Qurban), age, sex and size of the beef cattle. Management of the beef cattle was based on primary experiences, and transfer technology was not fully applied resulting in low productivity especially in breeding purposes. In order to increase cattle population based on liable production cost, an approach of animal integrated system with food crops, estate crops, forestry and others was feasible to develop [7]. Introducing appropriate feed technologies changed agricultural by-products to be a valuable feed for cattle.

The financing period of the Community Development Partnership Program (CDPP) from the State Savings Bank of Purwokerto started the credit agreement in December 2011 with a period of 5 years. Evaluation results on the development of the beef cattle business in CDPP participants generally run smoothly. Installments were made on time according to the agreed schedule with a 12-month grace period [8]. Beef cattle productivity characteristics under beef cattle cluster program are formulated in Table 2.

Table 1. Characteristics of system and sub-system beef cattle production

Characteristics of system		
1. Type (classification)	:	Mixed farming (crop livestock), minimum land
Sub-type	:	Traditional, landless, smallholders, fattening, cow-calf operation
2. Availability of factors, land, labor, capital	:	Land, household, capital, LEISA.
3. Orientation of production	:	Business, trading, marketing, calf-crop, dung
4. Crop production, fertilizer	:	Rice, maize, compost.
Sub-system animal production		
1. Animal species/breeds	:	Ongole cross, Simmental cross, Limousine cross Bali and Madura in festival days (Eid Qurban)
Adaptation	:	Local and crossing breeds
Productivity	:	Low gain productivity for local breeds
	:	
2. Function in system	:	Cash-income, security, investment
3. Management	:	Feeding (cut-and-carry, integration into crop).
Housing	:	Communal, integrated with forage areas
4. Interaction with crop production	:	Complementary (dung field)
5. Constraints nutrition, disease	:	Low nutritive value (quality and sustainability), bloat

Table 2. Beef cattle productivity characteristics under beef cattle cluster program

Factor	Beef Cattle Breeders in Banyumas and Banjarnegara	Beef Cattle Farmers in Cilacap
Farmer Resources	Mostly elderly	Mostly young people
Production orientation	Enlargement and fattening	A short period of fattening
Cows kept	most of the Ongole cross and Sumba Ongole breeds. for the needs of Eid Qurban, Bali and Madura Cattle are kept	most of the Bos Taurus crossbred: i.e. Simmental, Limousine cross
Rearing period	Rearing for 4-10 months, preferably for the Eid Qurban market	Intense fattening (45-96 days) and carried out routinely every year
Feeding pattern	Fattening used concentrate feed (5 kg/head/day)	There was feedmill business, concentrate feed (around 5-8 kg/head/day)
Production performance: daily liveweight gain	Average of 0.99 kg (Madura), 0.97 kg (Bali) and 1.23 (Ongole Sumba)	Reaching 2.33 kg with an average of 1.54 kg
Farming technology	Application of feed technology	Application of feed technology and recording of cattle weights and prices

3.2. Improvement of livestock production systems for strengthening beef cattle agribusiness

Improving the system production of beef cattle agribusiness was the main focus for development of beef cattle clusters. Three phases of stages which were a unity of realizing cluster development goals include institutional aspects, transfer of technology of good farming practices based on proven technology, and strengthening in capital and expanding market networks for road map development of beef cattle cluster through empowerment of group of SMEs farmer livestock. The following were the empowerment of farmer groups stages [5,8]: (i) strengthening of institutional group of beef cattle, (ii) facilitation of strengthening in science and knowledge and proven technology and (iii) facilitation of strengthening in capital through access to banking finance.

The program and activities of beef cattle cluster development covered three scopes, namely: (i) facilitation of strengthening in institutional group of beef cattle farmers, (ii) facilitation of transfer of

technology of beef cattle, and (iii) facilitation of strengthening in capital through access financing comes from banks and investors [5, 8, 9]. The implementation of beef cattle cluster strengthening took into account the characteristics production system oriented towards realizing a sustainable farm through the implementation of good farming practices based on proven technology. It was reported that development of sustainable agriculture covers aspect such as ecological, social, economy and politics [1] by following the conceptual framework of sustainability system of ruminant production [10]. The activities of beef cattle cluster strengthening in the scope of institutional strengthening of cluster groups were strengthening in transfer of technology, and strengthening in capital and markets. The methods applied were education, training, mentoring, comparative visit study, hearings and giving motivation and awards. Details and names of beef cattle strengthening activities were as follows:

(i) *Strengthening activities in management of beef cattle group*: training on beef cattle agribusiness, training on strengthening in group dynamics, training on group book keeping management, training on group financial administration, establishment of cooperatives of beef cattle breeders, establishment of the Beef Cluster Building Secretariat (Integration Building), making boards identity for beef cattle clusters, seminar on the development of livestock areas (Planning Division of the Directorate General of Animal Husbandry and Animal Health). Seminar on beef cattle cluster (Banjarnegara), animal card launching, organizing a contest of beef cattle from artificial insemination (Purbalingga), organizing a beef cattle contest between clusters (Banjarnegara), assistance for the cow program group (Banjarnegara), data collection and identification of livestock, addition to the number of cluster participant groups, sub-group formation.

(ii) *Strengthening Activities in beef cattle transfer of technology*: training on the selection of beef cattle and breeds, training for management of forage crops, training on processing beef cattle feed, care training and handling of livestock health, Training on processing manure (feces and urine) for fertilizer, construction of communal cows of beef cattle, construction of warehouses and feed processing, provision of livestock scales (capacity of 2 tons), provision of grass transportation equipment (Tosa), assistance for beef cattle fattening business, sending members to attend training to become inseminators, comparative study visit to advanced groups, study of beef cattle business, forum Group Discussion of beef cattle clusters, hearings with the Directorate General of Animal Husbandry.

(iii) *Strengthening activities in the beef cattle market and financial*: dissemination of banking financing schemes, socialization from the National Land Agency for certification programs, access assistance for banking financing, hearings to the office of the Revolving Fund Management Agency, cattle insurance socialization, socialization from the Revolving Fund Management Agency, partnership with feed ingredients providers, partnership with butchers.

Improving beef cattle production system in term of good breeding, feeding and housing practices addressed to increase productivity in order to improve efficiency and feasibility of beef cattle agribusiness. Feasibility of beef cattle farming and bankability are required for the propose credit from the bank. Various credit scheme related to ruminants raising are available under conventional and sharia scheme. Basically, there are two categories of finance consisted of investment and non-investment credits. Each credit scheme has specific characteristic (feature) depends on bank institution. Inhibiting factors experienced by those in rural communities seeking to obtain credit from formal sources such as banks include (a) the lack of sufficient collateral, mostly farmer do not have the land certificate and vehicle certificate of ownership (known as BPKB), (b) the high of credit rate, (c) longer in gestation period, 9 months, (d) the lack of feasibility, and (d) insufficient of group dynamic [8, 9, 11]. Inhibiting factors experienced by those in rural communities seeking to obtain credit from formal sources such as banks include cultural constraints, the lack of sufficient collateral, the complications presented by banking procedures, and the fear of falling into arrears [12]. In addition, since most banks are required to ensure a high level of loan repayments, there was a tendency to be selective in granting loan approvals.

The policy should be implemented in order to minimize inhibiting factors related to accessibility of credit include developing strategic for increasing the accessibility of beef cattle farmer getting finance

from the bank were formulated in this study. Steps could be implemented were as follows: (i) Increasing the potential of individual farmer in term of knowledge and skill, (ii) Creating beef cattle farmer group dynamic, (iii) Facilitating proven applied technology (including: breeding management, housing, feeding system, good farming practices) in order to increase feasibility, and (iv) Nurturing group of farmer to bank such as information and accessibility to bank [8, 9, 11]. Facilitating finance by collateral guaranty or using credit scheme special for a farmer group could be implemented especially for beef cattle farmer which are feasible but not-bankable.

4. Conclusion

Improving beef cattle production system in term of good farming practices including breeding, feeding and housing practices could be implemented in order to improve efficiency and feasibility of beef cattle agribusiness. Constraints related to development of beef cattle agribusiness include lack of feeding technology, landless, lack of managing natural resources especially for forages. Implementation of technology in term of good farming practices including breeding and feeding practices could be consider for increasing feasibility and competitiveness beef cattle agribusiness. The policy should be implemented in order to minimize inhibiting factors related to accessibility of credit through coordination among stakeholders.

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