Development Strategy of Cattle Beef Community Farming Center (SPR) in Jember Regency

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Abstract. As one of the beef cattle central areas in East Java Province, the local government of Jember regency has a strong commitment to always increase livestock production and improve the welfare of breeders through the establishment of cattle beef community husbandry center (SPR). Conceptually, the institution is formed with the aim of consolidating small breeders to become a collective business in order to facilitate its services. However, institutional management is not as easy as imagined, so that until now it has not been able to realize the goals as expected. The important problems faced by SPR of beef cattle in this region are the low productivity of livestock and the small income of breeders. The study focused on three main areas. The first area was aimed to identification of key factors in the development of SPR for beef cattle. The second area formulated a strategy so that the productivity and income of breeders in SPR can be increased. The third area translated the chosen strategy into operational models that could be applied to the institution. Development strategies were formulated with the SWOT method (Strengths, Weaknesses, Opportunities, Threats), while the operational model design used descriptive methods. The synthesis results from alternative strategies showed the need for business diversification by forming productive business groups in the SPR. This business group will be managed various potentials into high value-added commercial products, such as the production of complete feed, vermicompost, livestock breeding and processing of various livestock products. The role of local government is needed to empower this group by conducting intensive technical assistance, providing facilities and infrastructure assistance, forming partnerships with stakeholders, and promoting.

Key words-community husbandry center (SPR), cattle beef, breeder income, strategy, SWOT.

1. Introduction

Increasing population and improving the quality of life of the population has increased the need for beef in Indonesia. Increased consumption of beef has not been followed by the number of national cattle production so that until now Indonesia still imports beef [1,2]. Since 2004, the government through the Ministry of Agriculture has launched a beef self-sufficiency program that aims to increase the production and welfare of cattle breeders, but until now it has not been successful [3]. In 2015,

national beef production was 504.51 thousand tons, equivalent to about 15.5 million tail of cattle. Beef production in that year reached 506.66 thousand tons, an increase of 1.81% compared to 2014 which amounted to 497.67 thousand tons. As a results Indonesia was forced to import beef around 237 thousand tons, equivalent to 1.39 million live cattle [4].

In Indonesia, 99% of beef cattle fattening business is dominated by small-scale farms totaling 5.6 million with the level of cattle ownership only 1 - 3 beef cattle per breeder household [5]. The main problems faced by breeders are the low of beef cattle productivity and breeder households welfare.

Factors that cause these problems are scarcity of feed, limited capital and working time, low education and experience, limited business scale, and the use of traditional management. Most beef cattle fattening is only a supporting business, so breeders do not want to prioritize their time, funds and energy to increase business scale, in addition caused of limiting space and livestock managing ability [4]. Following the situation, the efficiency of beef cattle fattening is only around 77%. The profits obtained by breeders from this business are approximately Rp. 2.08 million per head of beef cattle, while the value of benefits per cost (B / C) ratio is 1.3 [6]. As a result, the sustainability of small-scale beef cattle fattening is still very low and has a high risk [7,8]. To solve this problem while increasing the effectiveness of the business management of smallholder beef cattle, in 2014 the Ministry of Agriculture launched a special program, namely the Cattle Beef Community Husbandry Center (SPR). Conceptually, SPR aims to consolidate small breeders to become a collective business managed in one management to facilitate their services. Services provided include animal reproduction and health facilities, technical training and assistance, marketing, beef cattle cultivation, processing technology for livestock products, financing, business partnerships with private companies, and promotion [9].

Jember Regency is one of the centers of beef cattle in East Java Province. In 2015, the population of beef cattle in this region reached 243.39 thousand or 5.7% of beef cattle population in East Java which amounted to 4.27 million. Therefore, this region has a strong commitment to develop SPR for beef cattle since 2016. However, in its operations, it had not succeeded in achieving its objectives because it faced problems as explained [4].

This study focused on developing beef cattle SPR in Jember District with three objectives, including a) identifying key issues of beef cattle fattening business; b) formulate an SPR business development strategy; and c) formulating operational policies to implement the strategies obtained in order to increase the productivity and welfare of breeders in beef cattle SPR.

2. Methods

This research is a survey research with quantitative descriptive approach [10]. To achieve the research objectives, a number of relevant decision-making methods and techniques are used. This research consists of three stages, as follows;

 a) Identify the key problems faced by beef cattle SPR in Jember Regency. Factors studied related to cattle beef included feed, reproduction, cage, health, marketing, manure, financing, and livestock management. At this stage used expert survey and interview methods. Identification results are presented in descriptive form.

 b) Formulate SPR development strategy for beef cattle by considering all the potential and key issues that have been obtained in the previous stages. The method used at this stage is SWOT which consists of internal and external factors. This internal factor has a component of Strengths and Weaknesses, while the external factors of the components are Opportunities and Threats. This method begins with building the External Factor Evaluation matrix (EFE matrix) and the Internal Factor Evaluation matrix (IFE Matrix) to evaluate each component of the factor. The next step is to build a SWOT matrix to produce a number of alternative strategies [11].

c) Formulate operational policies for the development of beef cattle SPR for based on alternative strategies by using the Focus Group Discussion (FGD) method. To increase the operational effectiveness of SPR, the institutional approach is used to formulate policies [12].

Research data sources are primary and secondary data. Primary data was obtained from expert meetings, focus group discussions, and in-depth interviews with research respondents. The number of respondents interviewed was 25 people who came from the Jember Regency livestock services, SPR breeders, livestock practitioners, and academics from universities. Research data was collected using structured research instruments. Secondary data is obtained from literature studies and supporting data, including statistical data obtained from BPS and other references from relevant institutions. The research sample was determined by purposive sampling with the consideration that the beef cattle SPR management system could be enough represented [13]. Research locations are shown in Table 1.

Table 1. Research locations

No.	SPR Name	Location	Number of Cattle (Head)			
			Population	Cow	Bull	Calves
1	Rukun Makmur	Wuluhan	2,897	2,307	242	348
2	Tunggal Jaya	Sumberbaru	1,217	1,019	163	35
3	Nurul Chotib	Jombang	1,301	1,106	109	86
4	Sari Andini	Sumberjambe	1,633	1,030	128	475
5	Bintang Mulia	Bangsalsari	1,234	1,010	158	66

3. Results and discussion

3.1 Identification of Key Problems of Beef Cattle SPR in Jember Regency

Fattening beef cattle is the dominant business carried out by breeders in beef cattle SPR. The types of cattle cultivated are "sapi jawa" or Ongole breeds (60%), Limousin (30%), and Simental (10%). Cattle fattening is done traditionally with intensive systems. Fattening time is 540 days with a weight of 160-200 kg and produces beef cattle weighing up to 600 kg. The types of feed given are forage, such as corn leaves and elephant grass with an amount of 7-10% of the livestock weight per day. Concentrated feed added to the daily ration is 2 - 3% of the beef cattle weight, but is rarely done because the price is expensive. The beef cattle cage is very simple. The wall of cage is made from bamboo with a basic structure from cement, while the roof is made from tiles or palm leaves. The cage size various depending on the number of livestock, usually dimensions of 9 m2 (3 x 3 m) to accommodate up to three beef cattle. This area is narrow when compared to the minimum area of cattle cages, which is 4 m^2 per head (Figure 1).

Figure 1. Cattle cages in SPR Bintang Mulia, Bangsalsari District (left) and SPR Rukun Makmur, Wuluhan District (right)

Breeders' awareness to care for livestock from disease attacks is quite good. This is indicated by the very low mortality rate of livestock, which is less than 2%. Cattle beef reproduction in SPR has used

Artificial Insemination (IB) with a realization rate of 98%. Birth productivity of beef cattle is around 14 months, slightly better than non-SPR productivity which is still 15 months. The level of infertility of cow is around 4%, slightly lower than non-SPR where the cow infertility level is 5%. Until now, SPR has not been able to manage the sale of cattle from its members. Until now, SPR has not been able to manage the sale of livestock from member. Breeders still sell their livestock alive in the nearest animal market or individual traders. The key problems faced by beef cattle SPR for are:

a. Fattening beef cattle is considered by breeders as a side business. As a result, they do not want to spend too much capital and time to develop this business. Breeders generally also work as farmers. When there are business interests that occur simultaneously, the farmers prioritize their agricultural business. Breeders usually sell livestock to finance food crops business, but very few breeders sell food crops to finance beef cattle business.

b. The time allocation from breeder to beef cattle business is only small (around 2-3 hours per day). If this business has exceeded that time, they are more willing to reduce the cattle number than sacrifice their time

c. The ability of breeders to raise cattle is very limited. With current conditions, they are generally only capable of up to 3 tails. If the number of cattle is increased, the breeder is no longer able to maintain his cattle properly. The limiting factors are land, labor, feed and working time.

d. Low capital allocation for beef cattle fattening business makes breeders unable to finance the application of adequate technology

e. Limited access to technology. As a result, breeders have not been able to preserve feed, process cattle manure into organic fertilizer, and process livestock products into other high-value products.

f. High quality beef calves are difficult to obtain

g. Prices of animal feed are expensive and difficult to reach by farmers

h. Lack of partnerships between farmers and business / private actors. This causes the price of animal feed to be expensive, limited capital, and difficulty in selling cattle at good prices.

i. Unrepresentative livestock marketing facilities

j. Cattle health facilities are still limited

3.2 Development Strategy for Beef Cattle SPR in Jember Regency

Internal factors analysis of beef cattle SPR development has done with Internal Factor Evaluation matrix (IFE matrix) (Table 2).

Table 2. IFE Matrix for the beef cattle SPR Development

	Internal Factors	Weight	Rank	Score
Strengths:				
a	SPR area has a large enough of potential forage	0.105	3.667	0.383
b	The SPR area has the availability of cultivation land as a source of forage	0.111	4.000	0.444
c	The SPR area has a large cattle population with sufficient number of productive cows	0.098	3.333	0.327
d	Mastery of artificial insemination technology that is quite good	0.092	3.000	0.275
e	Very adequate number of inseminators	0.033	3.000	0.098
f	The existence of government cooperation with universities	0.003	2.333	0.008
g	The existence small industries as a producer of animal feed	0.003	2.000	0.007
	Sub Total			1.541
Weaknesses :				
a	Limited of capital and time for cattle fattening business	0.026	1.667	0.044

b	Limited of high quality calves	0.078	2.667	0.209
c	The scale business of cattle fattening is still small	0.085	1.333	0.113
d	management of a cattle fattening business is still traditional	0.020	1.667	0.033
e	Limited of forage while concentrated feed is expensive	0.072	2.333	0.168
f	Investment for cattle fattening business is still low	0.065	1.667	0.109
g	Breeder resources are still low	0.052	1.667	0.087
h	Limitations of facilities and infrastructure (animal health center, animal market, abattoir)	0.013	1.667	0.022
i	Business partnerships between breeder and businesses are still rare	0.046	2.333	0.107
j	Livestock educator resources are very limited	0.059	2.000	0.118
k	threat of beef cattle theft	0.039	2.667	0.105
	Sub Total			1.113
	Total	1.000		2.655

The results of the analysis showed that the most dominant strength factors are number (b), (a), and [c]. Potential factors for the availability of land for the cultivation of livestock feed crops and the potential of crop plantation waste are the main forces to support the livestock population which is currently quite large. Both of these factors are closely related to the problem of scarcity of animal feed, especially in the dry season where the time of the breeder is very much consumed to find forage. Another strength factor is the mastery of artificial insemination technology which will be very useful to increase livestock productivity and support for the development of nurseries to produce high quality cattle calves.

Meanwhile, the main factors that are the weakness of the SPR development in Jember Regency are number (b) and (e). The first factor relates to the limited quality of cattle calves. Breeders get calves from other breeders or from other regions, but do not guarantee superior quality. This is due to the limitations of breeder in providing quality feed, and clean and comfortable cages for livestock.

The second factor concerns the limitations of feed and the high price of concentrated feed that is often experienced by breeders. This condition causes breeders to provide feed intake that is not suitable with the nutritional needs of livestock so that the productivity of livestock is not good.

The results of the SWOT analysis indicate that internal factors have a value of 2,655 which means that the strength factor is more dominant compared to the weakness factors. Although, the weakness factors are many, but can be handled by using existing strengths. This also becomes an indication that the development of beef cattle SPR in Jember Regency is very prospective. Analysis of external factors of beef cattle SPR development is indicated by the External Factor Evaluation matrix (EFE matrix) (Table 3).

Table 3. EFE Matrix Development of beef cattle SPR

	External Factors	Weight	Rank	Score
Opportunities:				
a	Regional government policy to increase beef cattle population and productivity, as well as the welfare of breeders	0.079	3.000	0.238
b	The existence of banking institutions and various loan schemes that can be utilized by breeders	0.111	3.000	0.333

c	Development of artificial insemination technology	0.159	3.667	0.582
d	The development of organic fertilizer processing technology from cattle manure	0.143	3.333	0.476
e	Development of feed processing technology	0.175	4.000	0.698
f	The existence of investment climate suitable for livestock business	0.127	3.333	0.423
g	The existence of research institutions and universities	0.032	3.333	0.106
	Sub Total			2.857
Threats:				
a	Increased conversion of agricultural land to other uses	0.048	2.333	0.111
b	Increasing prices of beef cattle fattening production facilities	0.008	1.333	0.011
c	Widespread use of crossbreed cattle as broodstock	0.048	1.667	0.079
d	Market competition with other breeder from other regency	0.008	1.333	0.011
e	Declining interest of young people to become breeders	0.063	2.000	0.127
	Sub Total			0.339
	Total	1.000		3.196

The results of the analysis showed that the dominant opportunity factors are number (e) and (c) factors. The first factor relates to the development of feed technology. Hopefully, the existing technology can be adopted to solve the problem of limited feed. The second factor relates to the development of artificial insemination technology. This technology can be utilized for the purpose of increasing productivity and developing superior beef cattle breeding businesses.

Meanwhile, the main threat to SPR development is the number (e) and (c) factors. The first factor is a serious threat to the sustainability of beef cattle fattening business. The decline in the interest of the younger generation to plunge into this business is due to the prospect that until now seems less profitable. The first factor is a serious threat to the sustainability of beef cattle fattening business. The decline in the interest of the younger generation to plunge into this business is due to the prospect that until now seems less profitable. The next threat is the widespread use of cross breeding as broodstock. The beef cattle produced from this process are decreasing in superiority. If it is not anticipated appropriately, it is feared that later it will be difficult to get superior pure lines.

The results of the SWOT analysis showed that external factors have a value of 3,196 which means that the opportunity factors are very dominant in overcoming various threats faced. This showed that the success of the development of beef cattle SPR in Jember regency can be achieved if the strategy to be implemented is based on the principle for optimizing the exist opportunities.

The results of the IFA and EFA matrices are then used to formulate the SPR development strategy for beef cattle. A SWOT Matrix that contains 10 alternative development strategies with very high priority is obtained (figure 2). The strategy leads to the development of business institutions in the SPR that can solve various problems faced today, including scarcity of feed, seeds of beef cattle, processing of manure, processing of livestock products, improvement of breeders' skills, and livestock marketing.

Strategies Strengths-Opportunities	Strategies Weaknesses-Opportunities

1. Development of complete feed in order to optimize the potential forage feed resource 2. Utilization of beef cattle manure as organic fertilizer 3. Increased farmer income by processing beef cattle products into high value added products	1. Development of breeding businesses to ensure the provision of quality beef cattle breeds 2. Increased investment and partnership to support production activities, and breeders business groups 3. Development of human resources livestock educator, facilities and infrastructure to improve services to breeders business groups
Strategies Strengths-Threats	Strategies Weaknesses-Threats
1. Optimizing the role of business partners (business people, researchers, academics and bureaucrats) in order to improve the competitiveness of breeder business groups 2. Diversification and commercialization of beef cattle processed products	1. Strengthening breeder organizations and group businesses 2. Improved security guarantees through beef cattle insurance services

Figure 2. SWOT Matrix of Development Strategy for beef cattle SPR in Jember Regency

3.3 Formulation of operational policies for the development of Beef Cattle SPR in Jember Regency

The operational policy model for beef cattle SPR development is produced through synthesis of alternative strategies (figure 3). In the proposed model there are a series of activities that can be a value chain for increasing the added value of products and strengthening SPR institutions. The main activity, for example activity to increase livestock production are supported by other activities that become the business unit of SPR. The cattle breeding business unit will supply SPR and other surrounding breeders. This business unit is managed by SPR with assistance from other parties. Assistance can be in the form of facilities, capital, artificial insemination technology, to institutions management. With the existence of this business unit, breeders will not experience difficulties in fulfilling high quality calves.
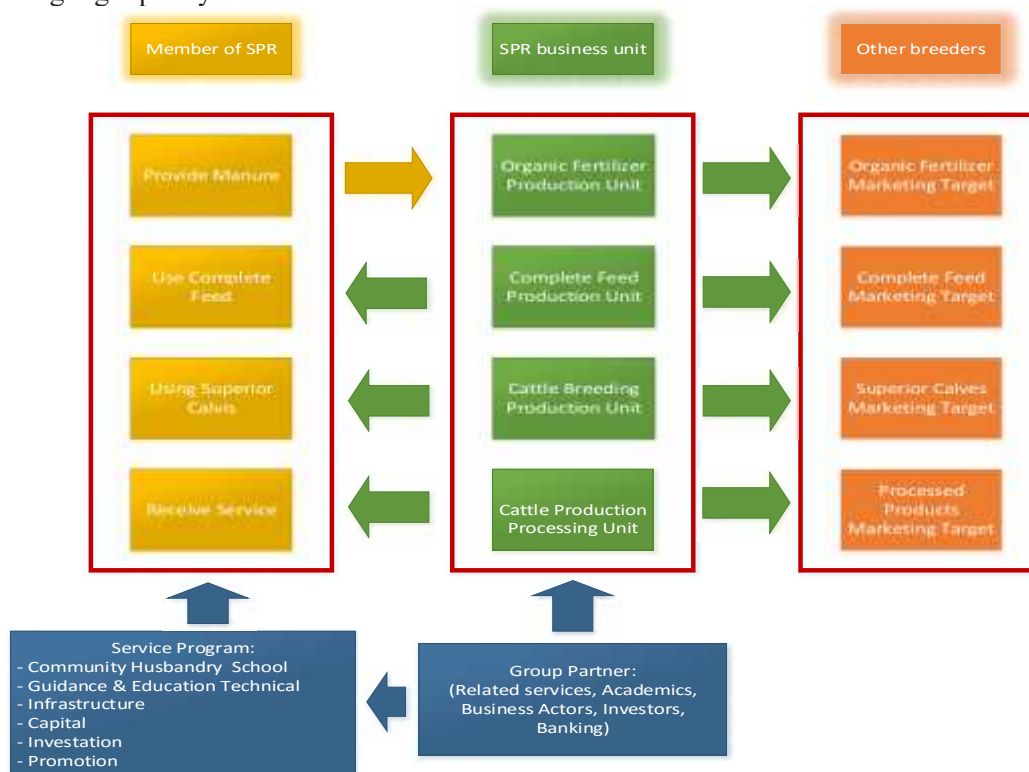

Figure 3. Development Model of beef cattle SPR in Jember Regency

Other activities that function to meet the needs of beef cattle feed in SPR are the production of complete feed production units. Breeders are not possible to increase their time to find forage. Providing complete feed is an effective solution. SPR with the help of business partners can develop this business unit to serve its own breeders, as well as be sold to other breeders. This business is very prospective because the SPR in Jember Regency is located in areas that are rich in the potential forage. In addition, market demand for feed is very high and it will be a very profitable business for SPR. The next activity is processing beef cattle manure into organic fertilizer. With a high livestock population in SPR, it will be a serious problem. If it cannot be handled, it will be a limitation for increasing SPR's business scale. Breeders may not handle or process their own manure because it will requires time and place. SPR established an organic fertilizer processing business unit whose management can be authorized to investors. However investors have the responsibility to empower SPR members, for example developing the community husbandry school, marketing products from other business units, as well as providing service facilities.

SPR also developed a business unit for processing beef cattle products as a value-added activity. This business unit is managed by SPR, but in its implementation SPR can optimize the role of breeder households assisted by other business partners.

Other important activities that characterize SPR are optimizing services from stakeholders who are business partners, ranging from holding a community husbandry school, technical assistance and assistance, business capital assistance, promotion, investment, marketing, and fulfillment of facilities and infrastructure. This activity is very important to empower breeders and establish SPR institutions to continue to be empowered, independent and sustainable. Services provided by partners must continue to be directed towards growing agribusiness activities that are the main characteristic of beef cattle clusters. For example, the animal market is not solely to help with beef cattle marketing, but the animal market must be a center of excellence for Jember Regency beef cattle so that it can create a positioning as a quality beef producing region in East Java and even Indonesia. To achieve this, it must be accompanied by proper management of the animal market

4. Conclusion

The problems faced in the development of beef cattle SPR in Jember Regency are very diverse, including limited feed, availability of superior calves, low human resources of breeders, limited capital, limited cattle production facilities, limited marketing reach, lack of business partnerships etc. However, the root of the problem is that beef cattle business is still considered a side business. As a result, breeders are reluctant to increase the allocation of time, funds, labor, and places for increasing this businesses.

In order for SPR of beef cattle to run effectively, the development model must be adjusted to the actual conditions, specific constraints and problems faced. From SWOT analysts, there are ten strategies that lead to the development of business institutions in SPR that can solve various problems faced today, including scarcity of feed, superior beef cattle calves, processing of cattle manure, processing of cattle products, improvement of breeder skills, and cattle marketing.

The strategy is then integrated into the existing SPR institutions by developing business units to deal with emerging problems. The business units that are developed are breeding beef cattle, complete feed manufacturing business units, organic fertilizer manufacturing business units, and cattle products processing business units. This model makes SPR an embryo for the development of beef cattle clusters in the future.

Acknowledgment

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