Formulating a Strategy for Development of Smallholder Beef Cattle Farming in Indonesia with the Force Field Analysis (FFA) Method

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Abstract. Beef cattle farming in Indonesia is dominated by smallholder farms with a micro scale, which is less than 5 (five) heads, traditionally raised with limited resources, but is sustainable. This study aims to formulate a strategy for the development of smallholder beef cattle farms. Research data was obtained by means of Focus Group Discussion (FGD), filling out questionnaires, and in-depth interviews with key speakers. Data analysis using Force Field Analysis (FFA) method which is based on driving factors (D) and inhibiting factors (H). The results of the study found that the driving factors for the development of smallholder beef cattle farming in Indonesia are consumption needs and market availability, government policies and institutional, social and cultural support of the community, availability of animal feed sources, availability of upstream and downstream industries, as well as regional carrying capacity and the use of appropriate technology, while the inhibiting factors for the development of smallholder beef cattle in Indonesia are unowned livestock Fully business-oriented, livestock cultivation is family savings, market access and long marketing chains, limited resource accessibility, poor reproductive management and low feeder availability, as well as weak protection of live cattle selling prices and tends to fluctuate. The conclusion of the study shows that the driving factor (D) has a smaller value when compared to the inhibiting factor (H), so the proposed policy recommendation is to revitalize government policies that support the development of the agribusiness sector (upstream, onfarm, and downstream) and agro-industry of smallholder beef cattle initiated by farmer institutions.

1 Introduction

The development of smallholder beef cattle farming in Indonesia is still worthy of study considering that the cultivation of beef cattle farming is dominated by smallholder farms on a micro scale, which is less than 5 (five) heads, traditionally raised with limited resources, but sustainable [1,2]. Such conditions show that smallholder beef cattle farming is one of the spearheads of sustainable livestock development [3,4], because it is one of the strategic commodities in Indonesia besides broilers and laying hens [5,6].

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Various efforts have been made by the Indonesian government to support the increase in the domestic beef cattle population, including the National Mainstay Commodity Cattle and Buffalo Program (SIKOMANDAN), the 1,000 Cattle Village Program (Program 1.000 Desa Sapi), the Special Efforts Program for Mandatory Pregnant Cows (UPSUS SIWAB), the National Lust Trigger Program (Program Nasional Gertak Birahi), and so on [7,8]. These efforts are based on various main reasons, including the growth rate of beef cattle population in Indonesia of 3.52% and still much higher when compared to the growth rate of the Indonesian population of 1.13% in 2023 (Central Bureau of Indonesian Statistics, 2023).

There is one interesting thing about the smallholder beef cattle farming business in Indonesia [9,10], namely the development of livestock business which is rarely done by farmers as business actors. This condition is caused because in principle livestock ownership is a form of family savings, has not led to business orientation [11,12], because beef cattle farming business is not the main livelihood of the Indonesian people, but works as farmers who work every day on agricultural land or plantations [13,14], so that if there is an increase in livestock population, then the time used by farmers to find grass and animal feed will be more, and will certainly interfere with agricultural and plantation cultivation activities [15,16].

Motivated by the various facts and realities above, the purpose of this study is to formulate a strategy for developing smallholder beef cattle farming in Indonesia. The novelty of this study is to formulate a development strategy using the Force Field Analysis (FFA) method, namely by considering various driving factors (D) and inhibiting factors (H), so as to produce appropriate recommendations for the development of smallholder beef cattle farms in Indonesia. The FFA method is one type of analysis that has been widely used by development practitioner organizations to plan and implement policy changes.

2 Research Materials and Methods

The research will be conducted in 2023 in East Java Province, Indonesia. The selection of the research site was determined by purposive sampling with the consideration that East Java Province is the province with the largest beef cattle population in Indonesia out of 38 provinces, which is 5,070,240 (BPS, 2022) or contributes 27.24% of the total beef cattle population in Indonesia. This study used a quantitative descriptive method. The data collection method used Focus Group Discussion (FGD), in-depth interviews, and filling out Likert scale questionnaires.

This research involves various key informants, namely parties who have an interest in efforts to develop the people's beef cattle business, namely small-scale fattening beef cattle business actors (population 7-60 heads), local governments, district / city governments, regional and district / city livestock and animal health offices, regional and district / city cooperative offices, industry and trade regions and districts / cities, regional and district / city micro, small and medium enterprises offices, the Provincial Development Planning Agency (BAPPEPROV) and the Regional Development Planning Agency (BAPPEDA), as well as academics.

The research data was analyzed using the Force Field Analysis (FFA) method. The FFA method is formed based on various reflections of driving factors (D) and inhibiting factors (H) [17,18]. The stages of FFA analysis are a) determination of urgency value (NU) and factor weight (BF). NU values are obtained based on scores from the Likert scale, while BF values are obtained from mathematical equations as follows:

$$BF = NU / TNU \times 100\% \quad (1)$$

BF is the weight of the factor, NU is the urgency value, and TNU is the total urgency value; b) determination of bearing value (ND) and bearing weight value (NBD). The ND value is obtained based on the score from the Likert scale, while the NBD value is obtained from the mathematical equation as follows:

$$NBD = ND \times BF \quad (2)$$

NBD is the value of the bearing weight, ND is the value of the support, and BF is the weight of the factor; c) determination of importance value (NK), average linkage value (NRK), and linkage weight value (NBK). The NK value is obtained based on the score from the Likert scale, the NRK value is obtained from the mathematical equation as follows:

$$NRK = \sum TNK / (n - 1) \quad (3)$$

NRK is the average value of relatedness, TNK is the total value of the linkage of a factor, and n is the number of driving or inhibiting factors assessed, and the number 1 is a factor that cannot be attributed to the same factor, while the value of NBK is obtained from the mathematical equation as follows:

$$NBK = NK + BF \quad (4)$$

NBK is the relatedness weight value, NK is the linkage value, and BF is the factor weight; d) determination of total weight value (TNB) and key success factor (FKK). The TNB value is obtained from the following mathematical equation:

$$TNB = NBD + NBK \quad (5)$$

TNB is the total weight value, NBD is the total bearing weight, and NBK is the linkage weight value. The value of FKK is a strategic factor, so that with the value of FKK it can be determined: 1) driving factors (D) consisting of strengths and opportunities, 2) inhibiting factors (H) consisting of weaknesses and threats. If the NTB value is the same, then you can choose the highest BF value, but if the BF value is the same, you can choose the highest NBD value, and if the NBD value is the same, you can choose based on practice factors and rational consideration.

3 Results and Discussion

The identification of the driving factors (D) and inhibiting factors (H) of the FGD results is shown in Table 1. The driving factors for the development of smallholder beef cattle farming consist of elements of strength and opportunity, while the inhibiting factors inhibiting smallholder beef cattle farming consist of elements of weakness and threats. The identification of these factors is based on the results of FGDs with key informants. The results of the identification were then assessed and weighted with the Likert scale through the FFA analysis method. The evaluation results can determine the total weight value (TNB) for driving factors and inhibiting factors. The value of TNB can also determine the key success factor (FKK) of the development of smallholder beef cattle farms. The results of the evaluation of the driving factors and inhibiting factors of the development of smallholder beef cattle farming are shown in Tables 2 and 3.

Table 1. Driving and Inhibiting Factors for the Development of People's Beef Cattle Farming

No.	Driving Factor (D)	No.	Inhibiting Factor (H)
D1	Consumption needs and market availability	H1	Livestock ownership is not yet fully business-oriented
D2	Government policy and institutional support	H2	Livestock cultivation is a family savings
D3	Social and cultural society	H3	Market access and long marketing chains
D4	Availability of animal feed sources	H4	Limited resource accessibility
D5	Availability of upstream and downstream industries	H5	Poor reproductive management and low availability of feeders
D6	Regional carrying capacity and utilization of appropriate technology	H6	Weak protection of the selling price of live cattle and prices tend to fluctuate

Source: research data, processed (2023)

Table 2. Factors Driving the Development of People's Beef Cattle Farming

No	Driving Factors	BF	ND	NRK	NBD	NBK	TNB	NUD ISM
D1	Consumption needs and market availability	0.13	3	3.44	0.38	0.43	0.81	
D2	Government policy and institutional support	0.19	4	3.89	0.75	0.73	1.48	*1
D3	Social and cultural society	0.13	3	3.11	0.38	0.39	0.76	
D4	Availability of animal feed sources	0.19	4	3.56	0.75	0.67	1.42	
D5	Availability of upstream and downstream industries	0.19	3	3.33	0.56	0.63	1.19	
D6	Regional carrying capacity and utilization of appropriate technology	0.19	3	2.89	0.56	0.54	1.10	
Number of TNB driving factors							6.76	
*)		:	is a priority of FKK					
Information		:	BF (Factor weight); ND (Support Value); NRK (Average Value of Linkage); NBD (support weight value); NBK (Linkage Weight Value); TNB (Total Weight Value); and FKK (Key Success Factor).					

Table 2 shows that the highest TNB value in the driving factors for the development of community beef cattle is government policy and institutional support with a TNB value of 1.48. Government support through various policies is considered as one of the main key factors driving the development of smallholder beef cattle farming in Indonesia, these policies include free Artificial Insemination (IB) facilities, control and handling of livestock diseases, animal feed subsidies, seed assistance and beef cattle feeders [19,20]. The government policy is then implemented through farmer institutions.

Table 3 shows that the highest TNB value in the inhibiting factor of community beef cattle development is that livestock ownership is not yet fully business-oriented with a TNB value of 1.52. There are several reasons livestock ownership is not fully business-oriented, namely the use of unpaid labor because it uses family labor, including looking for grass, giving feed, cleaning pens, bathing cows, and so on. In addition, the use of uncontrolled resources such as access to electricity and water in cages that use electricity and water sources

from farmers' homes, vehicles and fuel to find grass using private vehicles that are not counted as livestock business operational costs [21,22].

Table 3. Inhibiting Factors in the Development of People's Beef Cattle Farming

No	Inhibiting Factors	BF	ND	NRK	NBD	NBK	TNB	NUD ISM
H1	Livestock ownership is not yet fully business-oriented	0.19	4	4.11	0.75	0.77	1.52	*1
H2	Livestock cultivation is a family savings	0.19	3	3.78	0.56	0.71	1.27	
H3	Market access and long marketing chains	0.13	4	3.67	0.50	0.46	0.96	
H4	Limited resource accessibility	0.19	3	3.44	0.56	0.65	1.21	
H5	Poor reproductive management and low availability of feeders	0.13	4	3.44	0.50	0.43	0.93	
H6	Weak protection of the selling price of live cattle and prices tend to fluctuate	0.19	3	3.22	0.56	0.60	1.17	
Number of TNB inhibiting factors							7.06	
*)		:	is a priority of FKK					
Information		:	BF (Factor weight); ND (Support Value); NRK (Average Value of Linkage); NBD (support weight value); NBK (Linkage Weight Value); TNB (Total Weight Value); and FKK (Key Success Factor).					

Based on the results of the evaluation of driving factors (Table 2) and inhibiting factors (Table 3), the development of smallholder beef cattle farms, the field of strength (to the right) and the field of weakness (to the left) of the development of smallholder beef cattle farming are shown in Figure 1.

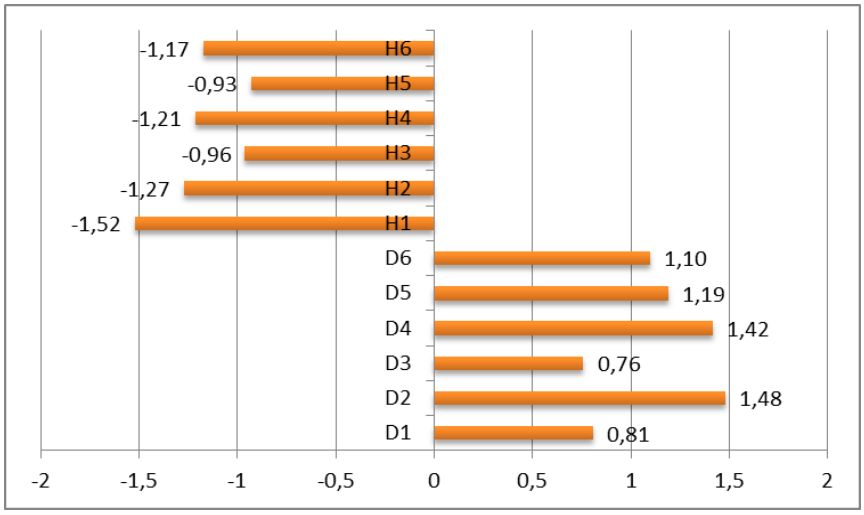

Fig. 1. Medan Strengths and Weaknesses of People's Beef Cattle Farm Development

Figure 1 shows that the inhibiting factor (weakness field) has a higher value when compared to the driving factor (force field). The number of TNB inhibiting factors is 7.06, while the number of TNB driving factors is 6.76. Such conditions show that special efforts must be made to suppress the inhibiting factors of the development of smallholder beef cattle and maximize the role of factors driving the development of smallholder beef cattle. The key inhibiting factor is that livestock ownership is not yet fully business-oriented, while the key driving factors are government policies and institutional support [22,23].

After considering the key inhibiting factors and driving the development of smallholder beef cattle farms, the proposed recommendation is to revitalize government policies that support the development of the agribusiness sector (upstream, onfarm, and downstream) and agro-industry of smallholder beef cattle initiated by farmer institutions of smallholder beef cattle farms aims at business orientation, then a cooperative is formed Farmer institutions to accommodate the management, processing, distribution, and marketing of processed livestock products so that they have added value and competitiveness, so as to increase the bargaining power of smallholder farmers against fluctuations in the selling price of live cattle in the market.

4 Conclusion

The results of the study found that the driving factors for the development of smallholder beef cattle farming in Indonesia are consumption needs and market availability, government policies and institutional, social and cultural support of the community, availability of animal feed sources, availability of upstream and downstream industries, as well as regional carrying capacity and the use of appropriate technology, while the inhibiting factors for the development of smallholder beef cattle in Indonesia are unowned livestock Fully business-oriented, livestock cultivation is family savings, market access and long marketing chains, limited resource accessibility, poor reproductive management and low feeder availability, as well as weak protection of live cattle selling prices and tends to fluctuate. The conclusion of the study shows that the driving factor (D) has a smaller value when compared to the inhibiting factor (H), so the proposed policy recommendation is to revitalize government policies that support the development of the agribusiness sector (upstream, onfarm, and downstream) and agro-industry of smallholder beef cattle initiated by farmer institutions.

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