



Development Strategy of Beef Cattle Business to Increase Farmers' Economic Value in Sukabumi Regency

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Abstract

The research objective was to determine the beef cattle business development strategy in increasing the economic value of farmers in Sukabumi Regency. The research was conducted in Ciracap District, Sukabumi Regency, West Java in 2020. The research used survey methods and interviews with 65 farmers and 9 extension workers from BPP Sukabumi Regency. Primary data and secondary data were analyzed using statistical analysis, economic analysis and Swot analysis descriptively and quantitatively. The results showed that the farmers' average land ownership was 1.57 ha/farmer. The farmer profit is IDR. 250.548.975 /year, the value of R/C is 1.14. The related variable (dependent) which affects farmer profit and business efficiency of beef cattle has an effect on the 95% confidence level. Swot analysis of internal and external factors in the development of beef cattle business showed the strengths of the working area of the Sukabumi Regency BPP including available labor, agricultural land area, grazing land, the number of cows being raised and the support of government institutions, private companies and other institutions as well as livestock market opportunities wide open. The weaknesses are limited land resources, business capital, increased feed prices and the price of beef cattle that were controlled by middlemen. It is suggested that strategies to increase beef cattle population and economic value of the farmers are by optimizing the function of empty land as grazing land and forage cultivation. Business cooperation, marketing networks and guaranteed beef cattle prices are pivotal in order to take advantage of relatively unfulfilled market opportunities.

Keywords: development, beef cattle, farmer economic value.

Background

Based on the environment and its habitat, socially, culturally and economically, the people of Sukabumi Regency are incorporated in agricultural business, beef cattle business and other livestock businesses. Sukabumi Regency always anticipates all the problems that will arise in implementing the beef cattle business development program. The strategy to increase the beef cattle population in the Sukabumi district requires strong support from the Central and Regional Governments and other interested institutions. It is expected that the programs made by the Government could run well, in accordance with the main tasks and functions of the work program along with strong cooperation. Where the business of most farmers in rural areas are always balanced with a business diversification of food crops and beef cattle. The working area of BPP Sukabumi Regency is one of the production centers for agricultural products, such as

rice, corn, soybeans and beef cattle, so that agricultural waste can be used as beef feed.

Meanwhile, beef cattle that are raised by farmers are still cultivated by being herded on empty lands owned by farmers, plantations, government and private companies. These lands are used as a place for breeder business activities and also as a place for grazing beef cattle owned by farmers. The land used for grazing beef cattle has received permission from the local government, private sector, village and land owners. Beef cattle in Sukabumi Regency contributes to fulfill the demands as well as additional income for the farmers in the Sukabumi Regency and Sukabumi Regency area (Widiati, 2014; BPP Sukabumi Regency, 2019). Therefore, the Sukabumi Regency is considered feasible as as center of beef cattle business due to the potency of its natural and human resources.

In addition to the increasing number of populations, beef cattle development efforts can also increase the economic value

of farmers. This can also improve the farmer's economy by meeting food demands and increasing people's purchasing power. Surestia and Wati (2012) suggested that the strategy to increase beef cattle population and add value to farmers requires strong and active community support and participation, so that business activities run well. The government has made several programs to increase the beef cattle population, and one of them is called Siwab (Sapi Indukan Wajib Bunting) Program. This program has been implemented since 2017, through artificial insemination (AI) and natural mating. The goal is to increase the mandatory pregnant cows. One of the most important factors in beef cattle rearing is the farmer's persistence in his business (Sodiq and Yuwono, 2016). The breeders need to improve the provision of good quality feed so the productivity and selling value can be escalated.

The implementation of production management can be seen from the use of input and output. If the beef cattle business is more effective and efficient, it will get optimal benefits. Farmers will have a stronger position to compete in the livestock market and achieve business goals. Businesses that are said to be effective and efficient can be proven by the production costs and other costs that can be balanced with the number of livestock raised and adequate production according to business conditions. However, this may fail if the main strategy is not right not well managed. The right strategy to develop a beef cattle business can be done by monitoring the environment, through environmental analysis techniques that can determine the suitable business site and the location of targeted market. Monitoring can also reveal several factors that can affect either the increase or decline in business journey.

The progress of the beef cattle business can be seen from the ability, willingness and support (from who?), so that it becomes the strength of the business. Usually there are strengths, weaknesses, opportunities and threats that are often faced by every farmer. However, it can be seen from how big the problem is, which can arise from both internal and external environment. The problems arising from

internal factors are usually due to lack of business capital, livestock market and guaranteed price for livestock. And so, there is a need for a measurable and directed concept to define a strategy in order to develop a beef cattle business in Sukabumi regency. The beef cattle business development aims to meet the needs of livestock sourced food, improve genetic quality, population and meat production in order to fulfill animal protein demands. Until now, the beef cattle business run by the farmers has not led much to commercial business, so that the benefits and welfare of the farmers have not been fulfilled properly.

Most of the beef cattle business capabilities are still carried out as a side or simple type of business, with the maintenance system being herded and scattered. To increase the economic value of farmers, the beef cattle business can be carried out in the form of a main business, not a side business or a savings business. Besides, farmers do not have enough information about the market price of livestock. Lack of valuable information for farmers will cause them to experience a loss in the sale value of their livestock. Besides not understanding the sale of livestock, the condition of the area which is not strategic can also hamper the farmer's economy. The success of the beef cattle business can be determined with the support of strategic policies, which can improve the development of beef cattle and the farmer economy.

The three dimensions that cover the main business are input market policies, cultivation, marketing and the government, private sector, and farming communities supports (Sodiq *et al.*, 2017). If the cattle farm management is underdeveloped, technical supports need to be supported through subsidies for capital necessity, animal feed, pens and others, so that the farmer's beef cattle business increases and well targeted (Rusdiana and Soeharsono, 2017a). The density of beef cattle can be calculated for the area of land and the day after tomorrow for agricultural harvest, and other land, which is possible as the provision of animal feed (Rusdiana *et al.*, 2018). Support for the capacity of farmers'

resources, the environment, climatic conditions and the potential for land resources in the supply of food is however sufficient. In Sukabumi Regency, beef cattle can be developed and the farmers are directed as independent farmers groups. Based on these problems, the beef cattle business development strategy in farmers can be directed to increase the capacity of farmers through education, training and ongoing monitoring.

Provision of facilities and infrastructure is a major factor in beef cattle business, followed by production output and marketing results. Beef cattle business management based on local feed technology innovation from agricultural waste can enhance breeding and fattening of beef cattle in an integrated and environmentally friendly manner. According to Harnowo *et al.*, (2012), the value of strength and opportunity is greater than the value of weakness and threat based on Swot analysis, especially for beef cattle business development. This analysis can also determine and formulate the environmental conditions of beef cattle business internally and externally. The purpose of this research is to determine the beef cattle business development strategy to increase the economic value of farmers in Sukabumi Regency.

Materials and Methods

Research sites

The research was conducted in Ciracap Subdistrict, Sukabumi Regency, West Java 2020. The location of the study represented a stretch of agriculture, plantation land, vacant land owned by farmers, land owned by Perhutani and the number of beef cattle being raised. The selection of research locations was carried out in accordance with the criteria for the number of farmers in beef cattle business and the area of cultivated agricultural land. The field survey was conducted through interviews with 65 beef cattle farmers and 9 extension workers from BPP Sukabumi Regency by filling in a list of questions that had been prepared as information. Primary data obtained from direct interviews with respondents and extension agents, which

refer to the questionnaire. Meanwhile, secondary data were obtained from the local office. Primary data and secondary data were analyzed using statistical analysis, economics and Swot analysis descriptively and quantitatively.

Data analysis

Economic analysis is carried out technically, so that the level of business capability and the level of use of resources and capital can be measured. Maximum profit can be achieved when the marginal value of production at each input equals the marginal cost. This aims to see the relationship between the production factors produced by the main farmers of beef cattle business. The production function of the results of the business can be analyzed if the product is in accordance with the business conditions of the farmer. In general, the production function can be calculated based on the value or initial capital used and the final value of profits, gross profits less production costs. However, this cannot be fully calculated, because the initial capital is to build a cage, purchase other calves and equipment. The production function in a beef cattle business is a function or equation that involves two or more variables that have a very closely related variable relationship.

Economic Analysis

Economic efficiency is the ability to produce output at a certain level of quality at a lower cost and utilize local feed and supplementary feed. In addition, economic efficiency is a combination of technical efficiency and price efficiency. Efficiency of production costs that can be compared with the acquisition of income for one year (Winarso *et al.*, 2006, Indrayani *et al.*, (2015). To find out what are the benefits and costs during the economic life of the business. beef cattle or other businesses (in the future) (Ashari *et al.*, 2012), economic analysis on beef cattle business can be calculated based on the economic value of one year. If $a > 1$, it means the business is feasible, if $a < 1$, it means the business is not feasible and if $a = 1$, it means the break-even business is neither profit nor loss. Income

analysis is obtained by comparing the income from the sale of beef cattle which is calculated for one year. Analysis of variance and gaps in results is are used to analyze the business.

If it is significantly different, it can be continued with the Duncan test and the efficiency of the beef cattle business can be analyzed financially (Soekartawi, 2005). Financing needs are classified into fixed costs and variable costs. The increase in net income with additional variable costs from each business treatment has been carried out by every farmer (Rusdiana aand Soeharsono, 2017b). Business activities can be calculated if there are changes that occur, in addition to costs i.e., farmers' losses due to livestock deaths and crop failures. The analysis of R/C ratio (retun cost ratio) is used to calculate the business feasibility of beef cattle and food crops. Analysis of income from beef cattle business can be used to describe the business profit factor (Soekartawi, 2005). Revenue can be defined as the difference between total cost and total gross revenue which can be assessed by its R/C ratio.

Simple Regression Analysis

Regression analysis aims to predict the dependent variable; Y is the independent variable, if X is known, which is associated with a functional relationship or a causal relationship. The independent variable X on the dependent variable Y. It is also necessary to calculate the number of farmer workers. Normally, farmers do not calculate their own labor costs, so for a number of expenses spent to pay for labor, a number of production inputs are used included. According to Putri *et al.*, (2019), the labor of farmers has not been calculated properly, so that the benefits obtained from farmers are not optimal. Labor costs are calculated based on the farmer's working time of 5-7 hours/day. The calculation is the conversion time of the farmer's work in one day which is calculated as 1 Hok(?) 5-6 hours / day. The assumption of working wages for farmers is calculated based on the work area with an average of IDR.15.000-IDR.20.000/day/farmer (Rusdiana *et al.*, 2019). As a determinant for the success of a

beef cattle business, the following formula is used:

$$Y = a + bx$$

$$a = \frac{(\sum Y - b \sum X)}{n}$$

$$b = \frac{N \sum XY - (\sum X)(\sum Y)}{N \sum X^2 - (\sum X)^2}$$

Where:

Y = Income of beef cattle and food crop farmers

X = Independent variable (land, capital, labor and farmer working time)

a = The constant value of Y if X = 0

b = Direction value as a prediction indicating the value of increase (+) or decrease (-) value of variable Y. Data are tabulated and processed statistically by multiple linear regression with the formula:

$$Y = a_0 + a_1X_1 + a_2X_2 + a_3X_3 + a_4X_4 + a_5X_5 + a_6X_6 + a_7X_7 + a_8X_8 + E$$

Y Beef cattle income/year

a Constant

b Regression coefficient

X₁ Number of beef cattle (head)

X₂ Cage equipment cost (years)

X₃ Farmer labor costs (years)

X₄ Forage cost (kg/head/year)

X₅ Additional feed costs (kg/head/year)

X₆ Business experience (years)

X₇ Farmer education (dummy variable)

X₈ Price of beef cattle (IDR/head)

E Error

Income from the results of the business of beef cattle and crops for one year can be an independent or dependent variable. Meanwhile, age, livestock farming experience, education, workforce that helps the business and the number of cows raised and the area of agricultural land are processed as independent variables. To answer the research objectives, the methods and data used in this study are as follows: economic analysis and as well as internal and external Swot analysis are carried out to obtain the strength factors that can be

utilized and the weakness factors that must be overcome. These factors are evaluated using the IFE (internal factor evaluation) matrix with the following steps. External analysis can use the EFE (external factor evaluation) matrix with its steps (Suresti and Wati, 2012). To determine the alternative strategy for developing beef cattle business in Sukabumi District, internal and external factor analyses can be used which are then analyzed using the Swot analysis method.

Results and Discussion

The general condition of the research location

Extension power in the working area of the Ciracap Agricultural Extension Center (BPP) included 8 villages namely Ciracap, Purwasedar, Pasirpanjang, Cikangkung, Gunungbatu, Mekarsari, Pangumbahan, Ujunggenteng villages. There were 9 human resources available as field instructors, with each of their main tasks and functions. The total area was 16,893 ha, which was divided into 4,379.7 ha of rice fields (1,443 ha of semi-technical irrigated rice fields, 1,898.7 ha of rural areas, 1,038 ha of rain), 1,272.8 ha of land and 119 ha of coastal land. The type of soil was red and yellow podsolicc (PMK) with soil acidity (PH) of 4.2-6.8. Air temperature ranged from 20-32⁰C, with the altitude between 0-200 meters above sea level. There were 16,242 households and 10,959 of them worked in agricultural sectors. The rest of their livelihoods were farming, fishing, trading, civil servants and Indonesian laborers (TKI) [BPP] (Agricultural Extension Center, 2020)

Farmer's Socio-Economic Descriptive

The survey conducted in Ciracap Sub-district, Sukabumi Regency revealed that economically, socially and culturally, cattle farm was a side business of their cocoa farming business. Almost all beef cattle farmers were not chosen as their main business or commercial business, but only for side businesses, savings and investment. Socio-economic agricultural business shows reflected the business of the farmers. Several production inputs in the beef cattle business and agricultural business both from cattle

population and the land area obtained had a significant effect impact on daily business life. In social and cultural terms, farmers and extension workers were mutually sustainable with each other, so that it can affect the economic feasibility of farmers. The information obtained from the agricultural extension agents of the BPP delivered to the farmers was, in turn, very good, which could increase the economic value of farmers, both in beef cattle and other agricultural businesses.

Economic and social calculations for farmers had not improved their welfare, but the basis for the consideration of cooperation and encouragement among farmers in carrying out business activities was quite good. Prosperity and adequacy did not mean fulfilling the needs of an adequate life, but basically, with assistance, business cooperation institutions could be proven in vain that the life culture of the farmers was deemed proper. Farmer's income was not yet optimal, that was likely due to limited knowledge and business capital. And yet the farmers had at least basic principles and ideas of farming in beef cattle and agricultural fields to increase economic value and welfare which were good enough. Despite the limitations of farmers in capital and in lack of business management methods, it is still necessary to have extra material, ideas and fund to support them (Boga, 2014; Kariyasa, 2015). Beef cattle and food crop businesses usually do not rely on particular season. This has become a characteristic of farmers in every rural area.

Land tenure status

The parameters of the level of land ownership were very different, even though they had the same status as farmers. The status of land that was used included personal ownership, renting, cultivating, mortgaged and yet not cultivated and others. Land owned by farmers did not change its ownership, whether it was cultivated by the farmers or by other people. The dynamics of changes in land tenure status and cultivated land status did not significantly fluctuate, as can be seen in Table 1.

Table 1. Average land ownership among farmers

Description	Agriculture (ha/RTP ¹⁾)	Plantation (ha/RTP)	Rice fields (ha/RTP)	Garden (ha/RTP)	Total (ha/RTP)
One's own	1.12±0.663	0.02±0.003	0.40±0.034	0.03±0.007	1.57±0.3925
Rent	0.53±0.013	0.00±0.000	0.00±0.000	0.00±0.000	0.20±0.1325
Working	1.08±0.663	1.22±0.003	0.77±0.014	0.02±0.007	3.09±0.7725
Mortgaged	0.00±0.000	0.00±0.000	0.00±0.000	0.00±0.000	0.00±0.0000
Not tilled	0.00±0.000	0.00±0.000	0.00±0.000	0.00±0.000	0.00±0.0000
Average	2.73±0.546	1.24 ±0.248	1.17±0.554	0.05±0.02	4.66±1.165

Information ¹⁾RTP = farmers household

Table 1 shows that almost 90% of the farmers' land was owned by themselves. The average land ownership for farmers, both arable, rowdy and others, was 4.66 ha/RTP, with various land conditions. The average land ownership of the farmers which was used as agricultural land, plantations, rice fields and gardens was around 1.57 ha/RTP. Generally, the agricultural land used by farmers were irrigated and rainfed rice fields planted with rice, maize and other secondary crops. According to Rusdiana and Soeharsono (2017b), farmers' profits earned during a one-year business were usually the result of selling livestock and agricultural products.

Land use as a farmers business

The area of land used for farming and livestock business could be seen from the area of land, the number of plants cultivated, and the number of livestock raised. Payment methods for the farmers were done in cash daily, weekly or when the job was finished or paid. To meet the daily economic needs of farmers, farmers usually work as farm laborers, traders or workers at harvest time. This indicated that it was not difficult for workers to cultivate agricultural land, that almost 90% of them work in agriculture and the rest were in other areas. According to Andriati and Sudana (2007), male farmers could be allocated as the main workforce, whereas women and teenagers were additional labors. The job of farmers to cultivate agricultural land and livestock business could be determined by the area of land, the number of beef cattle raised, the number of family member of the workers and the age of the farmers. (Rusdiana *et al.*, 2014).

The average working time of farmers for the beef cattle business was 139.5 Hok/year (Rusdiana *et al.*, 2019). Production costs and labor costs could be offset by the number of livestock raised. The outpouring of the farmer working time was calculated based on the conversion of 1 Hok to 5 working hours, and so the cost incurred was IDR 15,000-20,000/Hok. According to Dewi *et al.*, (2007) that, during the production process, the farmers job was started with activities from preparation to maintenance until the end of post-harvest. The priority business of farmers was generally in every rural area, the second priority was farming and livestock business (Rusdiana and Adawiyah 2013). The types of livestock and the types of food crops cultivated by the farmers in Sukabumi District, Ciracap District are shown in Table 2.

Table 2 shows that, the contribution of beef cattle and food crop business in general could be indicated as supporting the improvement of the farmer economy. According to Fajrianto and Suprehatna, (2020) in line with the transformation of the food and agriculture market (agri-food market transformation) that this kind of businesses often occurs in Indonesia due to economic growth, urbanization, demographics and increasing needs for agriculture and livestock. It is concluded that the business of beef cattle and food crops were mostly started during both dry and rainy seasons. The absorption of labor for farmers was still labor intensive, compared to capital intensive. Beef cattle and food crop businesses require a high enough quality and work intensity, so that it requires a large enough of labor force for farmers, which must be fulfilled by farmers. Technological progress cannot be separated

from the availability of natural resources, human resources (total manpower, technological mastery), and agro-economic support (Rusdiana and Maesya, 2017). Manatar *et al.*, (2017) suggested that the production of food crops can be influenced by the extent of land and good agricultural cultivation practices. Wijaksono and Nayastara, (2012) also stated that the increasing capacity of agricultural production is influenced by natural and land

conditions. The condition of the farmer's land also has a significant impact on the production of beef cattle and food crops. Therefore, almost all farmers chose to focus on food crop and livestock business during rainy and dry season. However, when harvesting and planting are finished, farmers usually take their time off to work, and continue to trade in markets or becoming fishermen.

Table 2. Types of crops, livestock and priorities cultivated

Description	The farm (Rainy season)			The farm (Dry season)		
	N	%	Land area (ha) \pm Sd	N	%	Land area (ha) \pm Sd
Rainy season/Dry season	65	100	3.81 \pm 1.076	65	100	3.81 \pm 1.076
-Beef cattle	65	100	3.77 \pm 1.066	65	100	3.77 \pm 1.066
-Chicken	45	69.23	0.02 \pm 0.003	45	69.23	0.02 \pm 0.003
-Duck	4	6.15	0.02 \pm 0.003	4	6.15	0.02 \pm 0.003

Description	Agriculture (Rainy season)			Agriculture (Dry season)		
	N	%	Land area (ha) \pm Sd	N	%	Land area (ha) \pm Sd
Rainy season/Dry season	65	100	12.61 \pm 4.898	65	100	4.25 \pm 1.877
-Rice	65	100	11.87 \pm 2.675	65	100	2.48 \pm 0.871
-Cron	65	100	0.77 \pm 0.063	65	100	0.65 \pm 0.008
-Peanuts	30	46.15	0.87 \pm 0.072	22	33.85	0.43 \pm 0.005
-Soybeans	30	46.15	0.79 \pm 0.064	22	33.85	0.80 \pm 0.065
-Other vegetables	65	100	0.04 \pm 0.007	28	100	0.04 \pm 0.007
-Cassava	65	100	0.54 \pm 0.033	19	29.23	0.69 \pm 0.008

The type of cattle breed

The types of beef cattle that are kept by each farmer are Ongole cross-breed (PO), Bali, Limousin, Brahman and Prahyanan cows. Nearly 60% of farmers raise PO cattle. Business farmers raise beef cattle semi intensively in cage and open land. The feeding frequency of beef cattle that are kept semi-intensively was not well recorded, as the herds were released in the morning and entered the pen in the afternoon. Beef cattle were bred through IB and natural mating. Nearly 80% of farmers have followed the operational standards for business of raising beef cattle set by the BPP Sukabumi Regency and the Animal Husbandry Service, Sukabumi Regency. Agricultural waste such as rice straw, corn and soybean commonly become source of feed which were processed at harvest time. The farmers also used rice bran and dried chopped cassava as additional feed sources ad libitum.

The prevention of disease in beef cattle was carried out through sanitation of

pens and grazing areas. Vaccination was carried out by extension workers from the BPP Sukabumi Regency and assisted by inseminators from the local Animal Husbandry and Agriculture Office. The common diseases suffered by cattle's farmers were scabies, worm infestations, diarrhea, and bloating. The farmers often used traditional herbal medicines made from lempuyang and papaya leaves as preventive medicines.

Beef cattle business economic analysis

Usually, the output in the form of the results received by farmers, the proceeds from the sale of calves, rejected parents, and males are calculated based on efforts for one year. Usually, the production costs in a beef cattle business included the cost of building a stable, land rental, cage equipment, purchasing medicines, labor, purchasing beef cattle and other unexpected production costs. The outcomes were calves, cows for breeding, feeders(?) and cows that are ready for slaughter. Farmers sold the calves

usually at the age less than one year old, so that they could immediately gain income. According to Rusdiana *et al.*, (2018), almost all farmers did not only rely on beef cattle business but also from food plant harvesting hoping to increase economic values at the same time (Rusdiana *et al.*, 2016a). However, this it unfortunately has not yet reached the optimal level of profit.

In addition, the AI program was also expected to increase the added value of assets and improve the quality of beef cattle in terms of producing calves. The selling value of both male and female calves resulted from AI was higher than that of natural bred calves (Rusdiana and Soeharsono, 2017a). Farmers used middlemen to sell products to the market. They were traders (55%), farmer groups (25%), and extension workers (20%). Another method of marketing the end products was through collector traders that was done by: the traders went directly to the cattle farmers or to the place where the beef cattle are being herded and conducted the transaction, usually in cash.

Production cost

Production costs were the accumulated costs required in the production process, including raw material costs, direct labor costs, and factory overhead costs (Aiba *et al.*, 2018). The costs incurred during the business usually affected the production activities carried out to produce outcomes that were ready to sell in market. There were 289 beef cattle from various ages and sex with an average price of IDR 8,876,500/individual or IDR 2,565,308,500. The calculated costs are: The cost of the cage depreciation is calculated based on a 2.5% one year amounting to IDR 7,332,525 / year. The cost of purchasing concentrate feed or fine bran 2 kg x the price of IDR 4,500 x 289 head x year of IDR 936,360,000/year. The purchase cost of forage for 10 kg x the price of Rp.150 x 289 x year is IDR 156,060,000/year. Land rental fee of 10,200,000/year. The cost of purchasing consumable cage equipment is IDR 15,300,000/year. The cost of purchasing consumable drugs is IDR 12,750,000/year. Labor costs calculated

based on 1 Hok 7 hours amounting to IDR 15,000 / day x 102 people x years of IDR 550,800,000/year. The total depreciation cost and production costs amount to IDR 1,688,802,525/year.

Income

The income obtained by the farmers was usually the result of selling calves, parent cows and adult males. According to Aiba *et al.*, (2018), revenue is obtained from all revenue from sales of beef cattle, reduced by production costs for one year. The proceeds from the sale of beef cattle cows that were no longer producing or rejected as many as 39 cows with an average price of IDR 9,870,500 or IDR 384,949,500/year. The selling value of female and male prospective beef cattle for the needs of farmers in the village and outside the village was 20 individuals, with an average age of 8-14 months, with an average price of IDR 7,898,500/ individuals or IDR 157,970,000/ year. The selling value of male and female calf beef cattle of various age was 159, with an average price of IDR 6,760,500 or IDR 1,074,919,500/year. The selling value of adult male slaughter cattle aged >12 months was 25 times with an average price of IDR 12,860,500/ individuals or IDR 321,512,500 /year. Total gross income was IDR 1,939,351,500/year. Total net income was IDR 250,548,975/year or IDR 2,456,362,5, with R/C farmer of 1.14. The profit analysis of beef cattle business by farmers was shown in Table 3.

Table 3. Analysis of the profit of beef cattle business in farmer

Discription	Total
Depreciation costs and production costs	1,688,802,525
Gross income/year	1,939,351,500
Net income / year	250,548,975
R/C	1.14

Table 3 shows that the beef cattle business in the way of herding the farmers profit is IDR 250,548,975/year, with R/C is 1.14. The low profit of beef cattle farmers, the production costs of labor and more feed. The results of research by Rusdiana *et al.*, (2016a) on beef cattle business by grazing a scale of 4 individuals /farmer showed that,

the farmer's profit was IDR 3,185,000/year with R/C was 1.2. Economically, the beef cattle business is feasible to try again. According to Otami *et al.*, (2017), usually in an intensive beef cattle business, the biggest costs incurred are feed costs, if the beef cattle business is an intensive business. Another thing is due to the long beef cattle production cycle (calving distance) so that it is considered inefficient for small scale businesses. The calving distance of beef cattle can be shortened, so that the business is more efficient. Beef cattle business is very diverse, for rearing bulls and breeding. To increase the economy of farmers, it is endeavored to grow and produce calves. Sodik *et al.*, (2017) suggested that beef cattle business by means of breeding is usually different from fattening business, so the economic value obtained will be slightly different.

Factors affecting beef cattle business

Analysis of the factors that influence the development of beef cattle business used multiple linear regression analysis which included the business scale as independent variable (X₁), the number of beef cattle being raised, (X₂), the cost of shed equipment (X₃), labor costs (X₄), forage costs (X₅), additional feed costs (X₆), business experience (X₇), Farmer education (X₈) costs of purchasing seeds. Meanwhile, the dependent variable is net income (Y). Partially, it will be seen that the significant effect on the income of farmers is shown in Table 4.

Table 4. The results of multiple linear regression analysis

Variable	t Count	Cegression coefficient	Significant
Constanta	7.543	4.652	.000
Business scale (x ₁)	.437	.029	.053
Breeding experience (x ₂)	0.125	-.016	.031*
Education (x ₃)	-0.217	-.013	.021
Labor costs (x ₄)	-1.687	-.372	.008*
Forage cost (x ₅)	1.992	-.087	.006*
Additional feed costs (x ₆)	-1.342	-.067	.019*
Cost of purchasing seeds (x ₇)	10.717	.8.731	.000*
Duration of effort (x ₈)	2.761	-.073	.0533**

F count	22.763
F Significant	.000
Adjusted R ²	.0553

Note: Significant on 95%*, Significant on 95%**

Table 4 shows that the significance value of F is 0.000, which means that all independent variables (*independent*) have a significant effect on the 95% confidence level. Factors of production costs in beef cattle development in Sukabumi Regency were statistically analyzed with the equation:

$$Y = (4.652) + (0.029X_1) + (0.016X_2) + (-0.013X_3) + (-0.372X_4) + (-0.087X_5) + (-0.067X_6) + (0.8731X_7) + (-0.073X_8)$$

The farmer's profit could be balanced by the number of livestock raised and the amount of production produced. Labor used depended on the number of beef cattle being raised. According to Darmawi (2012), labor costs contributed to farmers' income. If the income was lower, it may be due to higher production costs. According to Murwanto, (2008), The increase in the number of cows being raised would increase the amount of beef cattle produced every year, thereby increasing income (Murwanto, 2008).

Forage cost variable (X₅) had an effect on net income and had a negative regression coefficient of -0.087. The forage used by farmers was the result of collect the grass, foraging livestock and agricultural waste. The calculation of the cost of forage was converted from the length of time the farmer looks for grass and wages for work. The average working time of farmers used for beef cattle business was 6-7 hours/day. According to Hastuti (2008), farmers looking for their own feed could be assumed as the cost of feed. The variable cost of additional feed (X₆) had an effect on income and had a negative regression coefficient of -0.067. According to the opinion of Suranjaya (2011) stated that the beef cattle business by farmers, although the business method is simple, still requires production costs. The variable cost of seeds (X₇) had an effect on net income and had a regression coefficient of .8.731 positive values.

Production costs as the main business capital, are usually used for

purchasing the seeds, feed stables, and labor. According to Suresti *et al.*, (2012) and Rusdiana *et al.*, (2016b), the production costs of a beef cattle business can be adjusted to the number of livestock being raised. Farmers do not excessively give additional concentrate feed, meaning the size has been assumed. The variable period length (X_8) had an effect on net income and had a negative regression coefficient of -0.73. According to Cahyawati *et al.*, (2009) stated that the Adjusted R-Square value which is close to one means that the independent variable provides all the information to predict the dependent variable. The business scale variable (X_1) had no effect on net income and had a regression coefficient of .029 with a positive value. According to Suranjaya, (2011) the longer the business runs, the more production costs will be incurred, and the farmers will understand more about their livestock business. According to Nuraina, (2012), the F test is used to test the independent variables affecting all the dependent variables. The value of Adjusted R² Square was 0.552 or 55.3%, meaning the independent variable had an effect on the dependent variable on the farmer's income by 22,763 and 42,7%. The related variable (dependent which affects the increase in the economic efficiency of beef cattle business at the farmer) had an effect on the 95% confidence level.

Internal and external factors

The Swot analysis strategy was carried out by combining two internal factors with external factors, according to the conditions of the area being the object of research. The development of beef cattle business in the working area of BPP Sukabumi Regency (Pangumbahan Village) which had a strength, weakness, opportunity and threat, could formulate a future development strategy: Building quality of farmers' resources oriented to farmers. This can be achieved by the utilization and protection of natural resources, development of farmers institutions and business partnerships, development of areas based on beef cattle populations and strategic business approaches with subsystems from

upstream to downstream. Several factors that need to be considered in the stages of beef cattle business development can be analyzed and refer to the Swot analysis. Analysis of the identification of internal and external factors: strengths, weaknesses, opportunities and threats are presented in Table 5.

Table. 5, shows the internal and external factors, a business environment that creates opportunities and threats faced by beef cattle farmers. Internal factors consist of strengths and weaknesses identified by conditions that occur at the research location. External factors consist of economic strength, socio-culture, demand and technology. According to Purnomo *et al.*, (2017), an appropriate strategy for developing a beef cattle business is the stronger internal factors.

The strategy of developing beef cattle business resulting from the strengths and opportunities (S-O strategy) that Sukabumi Regency had was created from several actions: (1) Optimization of the function of available land for beef cattle development; (2) Creating a beef cattle development business by utilizing labor, food crop waste, vacant land as livestock grazing land; (3) the application of integrated beef cattle area (cluster); (4) creating opportunities for Sukabumi Regency area that can be used as a show window for beef cattle bag areas; (5) the application of a strategy for an integrated beef cattle breeding area; (6) Maintaining areas that are supported by the availability of subsystems in the beef cattle business from upstream to downstream as well as business success support services for farmers; (7) designing the development of beef cattle business in various stages, so that it leads to target areas and; (8) Developing independent businesses and to have strong economic value, and increase high added value and welfare of farmers and guarantee the price of livestock.

Likewise, the strategy of developing a beef cattle business that resulting from the weaknesses and opportunities (W-O strategy) of Sukabumi Regency was produced from several actions: (1) Facilitating the reach of financial

institutional system services for farmers; (2) Adding facilities and infrastructure for beef cattle business development; (3) Facilitating human resources development, especially in mastery of technology, entrepreneurship and business skills for farmer groups; (4)

“Suggesting the farmers to start a large-scale business to increase the potential of business of beef cattle”; (5) Facilitating farmers to obtain capital and institutional services to start and maintain the business.

Table 5. Identification analysis of internal and external factors in beef cattle business

Internal factor	Strengths	Weaknesses
Human Resources	<ul style="list-style-type: none"> - Availability of labor for farmers is quite high - Experience in agriculture and beef cattle business is quite high - Social and cultural environment around the farmers is quite good 	<ul style="list-style-type: none"> - Farmers' education is still low - Farmer groups are less experienced - Beef cattle farmers have not yet led to commercial ventures, they are still traditional
Support for Operations/production operations	<ul style="list-style-type: none"> - Availability of agricultural land, pasture land, rice fields, moor and vacant land is sufficiently available - The population of beef cattle is still being cultivated by many farmers 	<ul style="list-style-type: none"> - Agricultural land is widely used for residential areas, shops and factory buildings - Farmers have not used the land much for business - The scale of raising beef cattle in farmers is still a little between 2-4 heads / farmer
Marketing support for beef cattle production	<ul style="list-style-type: none"> - Market support for agricultural products and beef cattle is guaranteed - Transportation support to the market and slaughterhouses is quite strategic 	<ul style="list-style-type: none"> - The competition in beef cattle business is increasing, the competition for selling prices for beef and beef is quite high, - The role of village blantik is still high in determining the selling price of beef cattle at farmers
Capital support	<ul style="list-style-type: none"> - Support from government agencies, private companies and other institutions as investors or credit loans from banks for beef cattle business is sufficiently available 	<ul style="list-style-type: none"> - The administrative requirements for loan money to a bank are still burdensome for farmers or do not understand administration - Credit extension is widely used by experienced large entrepreneurs
Maintenance management	<ul style="list-style-type: none"> - Sufficient land area for beef cattle business. - Sufficient agricultural waste is available - The maintenance of beef cattle for farmers is sufficiently professional or experienced 	<ul style="list-style-type: none"> - Farmers have not used agricultural waste optimally. - The beef cattle business in farmers is still traditional
External factor	Opportunity	Thread
The economic value of farmers	<ul style="list-style-type: none"> - Demand for live cattle and beef and beef is quite high. - Marketing beef cattle and beef in Sukabumi district is very easy 	<ul style="list-style-type: none"> - Prices of live cattle and meat are controlled by village traders - Business competition in beef cattle business investment management
Farmers' social and culture	<ul style="list-style-type: none"> - The condition of the livestock market is in accordance with the beef cattle business 	<ul style="list-style-type: none"> - The social and culture of farmers have largely shifted to trading, fishing and working in cities
Government policy	<ul style="list-style-type: none"> - Government support in providing agricultural land, available enough vacant land for beef cattle business 	<ul style="list-style-type: none"> - There is a change in the function of agricultural land as land for the construction of housing, shops and factories
Application of new technology	<ul style="list-style-type: none"> - Widespread AI-ET (Artificial insemination- Embryo transfer) technology and hormones in farmers - Empty land can be used as land for forage cultivation 	<ul style="list-style-type: none"> - Technology is controlled by outside the region or outside of Sukabumi Regency. - Farmers do not take advantage of new technology, instead turning to independent technology

Another strategy for developing a beef cattle business resulting from the strengths and threats (S-T strategy) that Sukabumi has was from several alternatives: (1). Expanding or improving grazing land for beef cattle business activities; (2) balancing the demand for beef cattle, both from within and outside the district, (3.)

increasing production of livestock products, through AI and natural mating to improve productive female and superior male breeds, (4). Utilizing empty land for grazing, grass cultivation and food crop business, as well as utilizing agricultural waste as potential source of cattle feed.

Table. 6. Swot analysis matrix for beef cattle business development in Sukabumi Regency

Internal factors		
Strength-S		Weekness-W
1. Availability of labor for farmers is sufficient	1. Limited human resources, low scale of beef cattle business, only a side business	
2. Availability of land, agriculture, rice fields, fields, empty land and sufficient grazing land	2. Limited land, agriculture, high capital feed prices,	
3. Technical aspects for beef cattle business capital can be fulfilled	3. Limited feed technology, AI, ET hormones, PKB, ATR extension workers, government support and weak institutions	
4. Availability of feed technology, AI, ET hormones, PKB, ATR, extension agents and inseminators, as well as Government support		
External factors		
Opportunity-O	Strategy -SO	Strategy -WO
1. The extent of marketing of beef cattle production	1. Cooperating beef cattle businesses with institutions	1. Implementing government programs in the framework of beef cattle development
2. The increasing demand for live beef cattle and meat	2. Cooperating with outside and inside investors supported by the local government	2. Provide technical technology guidance to breeders, in the work area of the BPP Sukabumi Regency
3. Support of livestock technology, abundance of agricultural waste, forage and area of grazing land	3. Providing knowledge and technology to breeders through technical guidance from extension workers, researchers and others	3. Forming and maintaining a beef cattle farmer group in the work area of the BPP Sukabumi Regency
4. Support and forms of investment are quite broad		
Threat-T	Strategy -ST	Strategy-WT
1. The price of concentrate feed increases, agricultural land becomes settlement	1. Developing farmer resources through beef cattle business	1. Improve the management of beef cattle business at breeders
2. The role of village blantik is to determine the buying and selling price of beef cattle at breeders	2. Establish beef cattle business cooperation with business partners both outside and from within	2. Fostering business cooperation in breeders to develop beef cattle business
3. Farmers find it difficult to find business capital	3. Optimizing vacant land as agricultural land, pastoral land and land for cultivating forage beef cattle	3. The need for training breeders to develop a more advanced beef cattle business and refers to commercial ventures
4. There is no cooperation between livestock and beef cattle feed		

The strategy of developing beef cattle business based on strength and threat

(W-T strategy) of farmers was from several alternatives: (1) Training and empowering

of farmers through technical guidance on the cultivation of beef cattle and forage cultivation, from the extension agents of the BPP Sukabumi Regency, researchers and other institutions; (2). The beef cattle business by most farmers is still part-time business with a business scale of 2-3 cows/farmer. (3) Increasing the bargaining power of the livestock and at the same time increase the scale of the business, so that it becomes a market-oriented business.

The strategy for developing beef cattle business in farmers through Swot analysis is shown in Table 6. Table 6, shows, the results of the Swot analysis on the development of beef cattle business in the work area of BPP Sukabumi Regency Pangumbahan Village. It can be used as a first step to determine the right strategy to run the beef cattle business development such as socializing the activities and location identification for development. The strategy that must be applied to the working area conditions of the BPP Sukabumi Regency, in developing the beef cattle business is to support an aggressive growth policy (growth-oriented strategy) that uses power to obtain opportunities (SO). SO, alternatives that can be formulated are business cooperation with institutions, the government in developing feed and utilizing existing resources. Business cooperation, marketing networks and guaranteed beef cattle prices are encouraged in order to take advantage of relatively unfulfilled market opportunities.

According to Suresti *et al.*, (2012), it is necessary to record the number of beef cattle, the farmers, the area of agricultural land and regional conditions as well as market identification, and livestock prices, so that business activities can be managed well. Monitoring activities and evaluating the results of activities, as well as those that are routinely carried out. Ananta *et al.*, (2015) stated that, to get more accurate information, in the form of continuous feedback from beef cattle business development activities, good cooperation is needed. Beef cattle business development in the working area of the BPP Sukabumi Regency is potential as an integrated livestock. The implementation of business

activities for beef cattle breeding can run well hence achieving the expected output and improve business management. It is necessary to improve farmer performance, through farmer knowledge and skills so that beef cattle production increases (Sodiq *et al.*, 2017). Business management and management of forage cultivation should also be determined in a beef cattle area.

Central and Local Governments will immediately conduct an evaluation of the Regional Spatial Plan for Development of the working area of the BPP Sukabumi Regency. There may be yet other business plans, apart from agriculture and beef cattle farming as well. The transition of traditional business into a commercial business system and towards agro-industry in an integrated manner between the government, universities and the private sector in the work area of BPP Sukabumi Regency can certainly be implemented properly to achieve better economy of the farmers.

Conclusion

It can be concluded that the working area of BPP Sukabumi Regency is potential for the development of integrated beef cattle business. Judging from the support of agricultural land, plantations, fields, vacant land, farmers' resources and the socio-cultural culture of the people who are worry about agricultural business and beef cattle business. 95%. Swot analysis on the evaluation of internal and external factors, the development of beef cattle business in the working area of the BPP Sukabumi Regency: In the form of strengths and weaknesses, where the strengths have is the availability of labor, the area of agricultural land, grazing, the number of cows kept, institutional support, the Government and farmer groups and livestock market opportunities are quite large. Weaknesses, limited human resources and maintenance of beef cattle are still a little less leading to commercial ventures.

Central and local government agencies are expected to be able to support beef cattle business. On the other hand, farmers should also focus on their business, so that it is hoped that farmers will get optimal benefits. The farmer should

maintain their business, because the environmental conditions of the work area of the Sukabumi Regency BPP are suitable for the development of beef cattle. Beef cattle business could lead to commercial business if it is cultivated in a processed manner and so the profit of farmers will be optimal. Farmers can increase the scale of the beef cattle business from 2-3 individuals/ breeder to >6 individuals/farmer. The farmer's profit will also be obtained from the production of calves to increase their income.

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