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An Approach to determine potensial Ongole Crossbreed Breeding Using Analysis of Potential Development: A Study Case in Karanganyar Regency Province of Central Java, Indonesia

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Abstrak

This study aims to analyze the development potential of beef cattle breeding in Karanganyar Regency including financial business feasibility, SWOT analysis and development strategies as well. Determination of the research location in Karanganyar Regency using the location quotient (LQ) method in order to obtain 3 sub-districts including Jenawi, Jatiyoso and Mojogedang Sub-districts. Purposive sampling was used to select 40 PO (Ongole Peranakan) cattle breeders as respondents. The survey method was used to collect primary data from respondents and secondary data from related agencies. The net present value (NPV), benefit cost ratio (BCR), internal rate of return (IRR), payback period of credit (PPC), and break event point criteria were used in the feasibility analysis of the cattle feedlot business (BEP). SWOT analysis was also used in the analysis of the PO cattle development strategy. The analysis revealed that the PO cattle breeding business is not financially feasible over an 8-year period with a discount factor of 12%/year, but it is feasible if labor is not valued in money. The SWOT analysis turned out the livestock rearing system, easy to obtain forage, financially feasible conditions, and livestock breeding methods are the internal strengthsInternal weaknesses include a lack of information on beef cattle farming, farmers' lack of knowledge, and farmers' weak bargaining position. External opportunities include the supply of business capital and the use of breeding technology. External threats include livestock diseases, competition for beef cattle from other areas, and uncontrolled livestock sales. PO cattle breeding business in Karanganyar Regency is feasible.

1. Introduction

The condition of beef cattle farming in Indonesia has the potential to be developed. This can be seen in the increase in the beef cattle population in Indonesia from 16,429,100 heads in 2017 to 18,053,700 in 2021, or an increase of 2.39% on average (Badan Pusat Statistik Republik Indonesia, 2022). While Central Java Province has a relatively high population of beef cattle, as evidenced by the increase in population from 2017 to 2021, which amounted from 1,710,800 to 1,863,327, with a beef cattle development rate of 2.16% per year (Badan Pusat Statistik Jawa Tengah, 2022). The development of beef cattle in Karanganyar Regency has also increased, as evidenced by the beef cattle population increasing from 63,716 in 2017 to 66,762 in 2021, or an average increase of 1.17% per year over the last five years (Dinas Peternakan dan Perikanan Kabupaten Karanganyar, 2022). Every year, the population of beef cattle grows, resulting in increasingly high demand conditions that necessitate strategic steps to ensure meat supply. This increase results from a good breeding system that produces high-quality cattle, so that the demand for beef meat rises in tandem with population growth, consumer awareness of nutritious animal food, and community economic growth (Mukson et al., 2017).

Beef cattle business is a process of combining production factors in the form of land, livestock, labor and capital. The success of a beef cattle business depends on seeds, feed, and management (Indrayani & Andri, 2018). Currently, the livestock sub-sector in Indonesia is quite developed and consequently has good prospects in running a beef cattle business. This development is supported by increasing population growth and community needs, which necessitates consumption of animal protein, resulting in the need to increase the availability of food derived from animals. One way to meet this need is through the beef cattle industry (Lasaharu et al., 2020). The demand for animal-derived food has the potential to drive market demand both locally and regionally, as well as for exports, which are on the rise. Economic growth influences food needs, as population, per capita income, and societal economic value rise. Almost all food needs in Indonesia can be met from domestic potential, except for imported meat commodities. This is because the need for meat in Indonesia is not able to meet the demand for meat which is increasing every year. One of the causes is the slaughter of productive female cattle by breeders, which requires supervision from the government. The need for meat is fulfilled by breeding which is expected to produce male calves (Rusdiana & A. Maesya, 2017).

The main role of the breeding business is to increase the population of beef cattle with a rearing system that is currently still traditional, both in terms of inputs and the use of technology, especially in Central Java. Breeding activities will be different from breeding activities which

generally only reproduce using existing seeds. Cattle raising activities currently carried out by breeders are generally still in the nature of breeding because they still do not meet the basic criteria for producing good cattle breeds, so a system capable of improving beef cattle breeding is required (Romjali, 2018). In addition, the potential possessed by the province of Central Java in developing a cattle breeding business covers a large enough area to meet the availability of forage materials, local culture for raising cattle as the main capital in raising social status and an adequate animal market in selling male calves.

Based on the number of beef cattle in Central Java Province and Karanganyar Regency, the government through the Directorate General of Animal Husbandry, Ministry of Agriculture wants Central Java Province, particularly Karanganyar Regency, to be one of the largest beef cattle producing regions in Indonesia. To determine the current state of the beef cattle business, it is necessary to assess the feasibility of the breeding business and the development strategy for Ongole crossbreed cattle in Karanganyar Regency. The financial feasibility analysis used can be in the form of *Net Present Value* (NPV), *Internal Rate of Return* (IRR), *Benefit Cost Ratio* (BCR), and *Payback Period* (PP) (Widiati & T. A. Kusumastuti, 2013). As a result, the following objectives were pursued in this study: 1. Analyzing the feasibility of the PO beef cattle breeding business in Karanganyar Regency; and 2. Developing a development strategy for Ongole crossbreed cattle breeding in Karanganyar Regency using SWOT analysis (Strengths, Weaknesses, Opportunities, Threats).

2. Methods

The method used in this study is a survey method using a questionnaire (Sugiyono, 2016). This study was conducted over a three-month period in three districts: Jenawi, Jatiyoso, and Mojogedang sub-districts, Karanganyar Regency, Central Java Province. Purposive sampling was used to select sub-districts as research sampling locations based on the results of the assessment in the form of the highest score using the location quotient (LQ) method (Tarigan, 2007). Each sub-district is taken by two villages that have the largest beef cattle population. The study used 40 Ongole crossbreed cattle (PO) breeders which were taken by *purposive quota sampling* (Sugiyono, 2016) based on ownership of at least 2 cattle and breeding experience for more than 2 years. Respondent characteristics data include respondent age, formal education, primary occupation, number of productive family members, farming experience, and land ownership area (ha). The business carried out by PO cattle breeding farms has a revenue stream consisting of various components including revenue from the sale of livestock, sales of manure and the yield from the rest of the stalls and the value of the rejected cow. The method of analyzing the feasibility of the nursery uses the criteria of NPV, BCR, and IRR followed by PPC and Break Event Poitn (BEP) (Widiati & T. A. Kusumastuti, 2013). Also, SWOT analysis developed by Rangkuti, F. (2014) to identify and analyze the influence of internal and external factors in the livestock breeding business based on strengths, weaknesses, opportunities and threats as well as formulation in development projections.

3. Result and Discussion

3.1 Characteristics of farmer respondents beef cattle

The characteristics of the beef cattle breeding breeder respondents influence the development of the business's productivity. The characteristics can be seen by farmers' daily activities and the demographic conditions surrounding the breeding business location. Breeders' business development will advance if they change their mindset and supplement their characteristics with practical knowledge obtained through counseling. Table 1 details the characteristics of the respondents discussed in this study.

Overall, the average age of beef cattle breeder respondents was 54.05±9.7 years. This demonstrates that the average beef cattle breeder is of productive age who has more opportunities to be able to improve their productivity performance in conducting beef cattle business. Most of the farmers have elementary school education of 70%, and the rest have junior and senior high school education respectively 20% and 7.5% and there are 2.5% of farmers who do not attend school. Meanwhile, none of the breeders had education up to university. The level of non-formal education was attended by 25% of breeder respondents, while those who did not attended were 75% (Table 1). The non - formal education obtained came from extension workers of animal husbandry services of Karanganyar Regency and university institutions in providing counseling, especially in the process of raising beef cattle properly and correctly, as well as the process of making fermented straw, which is followed by some breeders but without sustainable and disease management procedures. The education provided by the livestock service includes procedures for handling beef cattle and proper methods of artificial insemination. while counseling from universities takes the form of making silage feed. The main job of beef cattle breeder's are farmers (70%), private (22.5%), laborers (2.5%), factory workers (2.5%), and traders (2.5%) (Table 1). Respondents earn more than 50% of their

family income (Rp. 1,000,000) from the beef cattle breeding business. The average number of productive family members is 4-6 people, with as many as 21 respondents or 52.5% of the total having an average of 25.17 11.13 years of farming experience and 0.37 0.36 ha of land ownership.

Breeders of productive age are needed to manage the livestock business and being able to absorb absorb cattle-raising technology more easily and quickly. Breeders with an age range of 15-55 years included in the productive age for work (Ibrahim *et al.*, 2020). This productive age breeders can accept various innovations in raising livestock (Mayangsari *et al.*, 2014), because age is an important factor in determining attitudes of making decisions so they can work optimally and productively. As they get older, breeders will experience changes in this case the addition of age results in a decrease of productivity in raising livestock so that a productive age is needed (Sahala *et al.*, 2016) (Mutiah *et al.*, 2018).

The education level of breeders will influence the absorption of new science and technology. Farmers with a lower level of education, in general, will struggle to adjust technology, both in the maintenance process and in the treatment of postnatal feeding, resulting in the level of production desired by the breeder. This can be one of the messages that need to be conveyed by agricultural extension workers in a package of extension programs. In addition to formal education, breeders also have non-formal education. In the research by Utami *et al,* (2019) and Sahala *et al,* (2024) that with the lecture method on counseling that has ever been obtained, the farmer has gain insight and information in the form of knowledge feed processing in raising beef cattle (Sahala et al., 2024). Confirmed by Sumitra *et al,* (2013) said that for the main occupation of breeders activities where all the resources and abilities they have are devoted to their main profession (Sumitra J et al., 2013). Isyanto (2015) added who stated that beef cattle breeders do this business as a side business for farmers, but the business it mattered to him so much allotted working time (Isyanto, 2015). The large number of family members who assist in the business can shorten the time it takes to raise beef cattle, beginning with looking for green fodder, providing feed and water, cleaning the manure, and sometimes bathing the cattle.

Takasenserang *et al,* (2021) argued that the business of raising beef cattle requires family involvement in managing the beef cattle business such as the head of the household, as well as family members participating in cattle raising, such as the wife and children. This role can be seen in the components of the role of family workers in the beef cattle industry, such as the role of family members on access, control, decision-making, and benefits (Takasenserang S et al., 2021). This statement is consistent with Kusumastuti *et al* (2022) who stated that there is a division of roles in the management of mixed farming for the head of the family and his wife (Kusumastuti et al., 2022). The wife plays a role in processing agricultural products while the head of the family is more dominant in the process of raising livestock.

Breeding experience is crucial to breeders success. The more experience a breeder has, the easier it is to make decisions in production. The breeder's experience in breeding is considered to have experience in running a beef cattle business. Zainal & Riszqina (2016) stated that most livestock experience is gained by farmers when they start a beef cattle business when they are young, namely after graduating from elementary school, who have followed in their parents' footsteps in raising cattle, even though they only help (Zainal & Riszqina, 2016). Research by Purnomo *et al,* (2017) explained that the more experience a breeder has, the more he can help run the business he is doing so that the farmer can easily make a decision in his maintenance management, is more skilled, and is able to quickly identify any problems in his livestock business (Purnomo et al., 2017). Confirmed by the opinion of Aiba *et al* (2018) that farming experience is very important for breeders because the longer a person's farming experience, the skills they will have will be higher and of higher quality (Aiba et al., 2018).

Respondents in breeding business have an average land area of 0.37±0.36 ha, which means that the breeder has a large enough area to support livestock production. In line with the opinion of Mauludin *et al* (2012) that large land ownership has an effect on the availability of quite a lot of forage, sometimes quite adequate, and cattle feel safe in the development process sometimes (Mauludin et al., 2012). According to Alfrida & Noor (2017), the larger the farmer's land ownership, the greater the contribution of agricultural sector income to the total income of the farmer/breeder household (Alfrida & T. I. Noor, 2017). The forage provided was 11.75 kg/day/head of elephant grass, 2.98 kg/head of corn stalks, 5.3 kg/head of rice straw, and 1.85 kg/day of field grass. The concentrate given was bran at up to 1.85 kg/head and tofu dregs at up to 0.45 kg/head. The floor of the cage is made of dense soil, but some breeders have cement floors. In general, cattle are sold based on the needs of the farmer rather than the costs incurred during maintenance. Breeders usually sell their cows around Eid al-Fitr, Eid al-Fitr, and the start of the school year.

Table 1. Characteristics of Respondents of PO Beef Cattle Farmers in Karanganyar Regency

Characteristics of Respondents	Breeder respondents	
	Number of people	Percentage
Farmer's Average Age (years)	54.05±9.7	
Formal education		
No school	1	2.50
Primary School	28	70
Junior High School	8	20
Senior High School	3	7.50
University	0	0
Non-formal education		
Once	10	25
Never	30	75
The main job		
Farmer	28	70
Not Farmers	12	30
Family Income		
< Rp. 1,000,000	31	77.50
Rp. 1,000,000 – Rp. 2,000,000	8	20
> Rp. 2,000,000	1	2.50
Number of Productive Family Members		
1-3 Person	19	47.50
4-6 People	21	52.50
>6 People	0	0
Average Livestock Experience (years)	25.17 ±11.13	
Average Land Ownership Area (Ha)	0.37±0.36	

Source: Processed Primary Data, 2022

3.2 Aspects- technical and economic aspects of PO cattle breeding business

The technical aspect includes the PO cattle breed, which is raised by smallholder beef cattle breeders at the study site. Breeders keep PO cows because feeding them is more cost effective given the environmental conditions in Karanganyar Regency. The types of feed given in the PO cattle breeding business by respondents at the research location were forage and concentrate feed. Management of the PO cattle breeding business's maintenance, which includes providing feed, drinking, removing manure, cleaning stables, and bathing livestock. Breeders and family members perform maintenance. Breeders' observations show that livestock are bathed 1-2 times per week, and cages are cleaned every day without the use of disinfectants. Furthermore, calves are sold at an average age of 11.5 months, implying that respondents are involved in both breeding and rearing operations.

The breeder's investment costs in the beef cattle breeding business include cow manufacturing, equipment, and the purchase of breedstock. PO cattle breeders have an investment cost of IDR. 3,746,250 (Table 2). All investment costs are paid for with personal funds. PO cattle breeders must pay IDR. 94,225 for equipment. According to the study's findings, the average ownership of beef cattle is two heads, with an annual cost of IDR. 16,998,575 (Table 2). The average annual feed cost for PO cattle breeders is IDR. 4,313,382.163. There were no respondents in the PO cattle breeding business who feed cattle with cassava. Generally, breeders provide field grass obtained around the study site. Artificial insemination costs are paid during injecting mating. On average, breeders inject their livestock 2 times until they become pregnant. The average cost paid by PO cattle breeding business respondents is IDR. 47,656.25. Health costs incurred by breeders are quite cheap. The health costs incurred by PO cattle breeders for one year amount to IDR. 12,812.5. The cost of repairing the cage as shown in Table 2 is IDR. 45,953.125. The damage occurred in the form of replacement of floors, roofs and cage walls made of bamboo or wood. The average cost of equipment in the PO cattle breeding business in Karanganyar Regency is shown in Table 2, which is IDR 51,041.67. The cost of water and electricity is IDR. 61,270,833. Water and electricity costs are obtained directly from interviews with respondents.

Table 2. The average economic parameter of PO cattle breeding in Karanganyar Regency

No	Economic Parameters	Total Expenditure (IDR,00)
1.	Investment	
	a) Making Cages	3,746,250
	b) Equipment	94,225
	c) Cows	16,998,575

2. Production cost	
a) Feed	4,313,382.16
b) Artificial insemination	47,656.25
c) Health in month	12,812.50
d) Labor day	7,657,395.83
e) Purchase of tools	51,041.67
f) Cages repair	45,953.12
g) Water and Electricity/month	61,270.83
3. Revenue	
a) Livestock Sales	5,193,567.25
b) Dirt/dry sales	2,785,881.71
c) Cage Residual Value	1,873,125
d) Rejected broodstock	16,998,575

Source: Processed Primary Data, 2022

According to Table 3, the PO cattle breeding business is based on livestock sales of IDR 24,357,895.94 with a BEP value based on livestock units of 5 heads. The results of the calculation-based analysis of BEP values are shown in Table 3.**Acceptance of beef cattle breeding business**. The main result of the PO cattle breeding business is the sale of livestock in the form of calves. while the by-products are in the form of livestock manure, the remaining value of stables and sales of rejected broodstock so that the total revenue in year 8 is greater than the previous year. Table 4 shows the total projected revenue for the beef cattle breeding business.

Table 3. Value of BEP PO beef cattle breeding business in Karanganyar Regency

Description	Amount (IDR,00)
Fixed cost	20,839,050
Variable Cost	4,554,288.41
Reception	31,525,359.49
BEP based on livestock sales (Rp/breeder)	24,357,895.94
BEP based on unit livestock	5.16 tails

Source: Processed primary data, 2022

Table 4. Projection of total beef cattle breeding business revenue

Year to -	Main Product Revenues (IDR)	Revenue of By-Products (IDR)	Total Revenue (IDR)
Year 0	-	1,311,003.16	1,311,003.16
Year 1	0.00	2,622,006.32	2,622,006.32
Year 2	9,348,421.05	2,622,006.32	11,970,427.37
Year 3	9,348,421.05	2,622,006.32	11,970,427.37
Year 4	0.00	2,622,006.32	2,622,006.32
Year 5	9,348,421.05	2,622,006.32	11,970,427.37
Year 6	9,348,421.05	2,622,006.32	11,970,427.37
Year 7	0.00	2,622,006.32	2,622,006.32
Year 8	9,348,421.05	21,493,706.32	30,842,127.37

Source: Processed Primary Data, 2022

Beef cattle breeding business income. Income is the difference between the total income of PO cattle breeding business minus the total cost of PO cattle breeding business. The income of the PO cattle breeding business in Karanganyar Regency is shown in Table 5.

Table 5. Revenue of PO cattle breeding business in Karanganyar Regency

Year to -	Total Revenue (IDR)	Total Cost (IDR)	Total Income (IDR)
Year 0	1,311,003.1 6	23,122,605.26	-21,811,602.11
Year 1	2,622,006.32	4,775,339.69	-2,153,333.3 8
Year 2	11,970,427.37	4,699,089.69	7,271,337.68
Year 3	11,970,427.37	4,869,564.69	7,100,862.68
Year 4	2,622,006.32	4,775,339.69	-2,153,333.38
Year 5	11,970,427.37	4,699,089.69	7,271,337.68
Year 6	11,970,427.37	5,237,189.69	6,733,237.68
Year 7	2,622,006.32	4,775,339.69	-2,153,333.38
Year 8	30,842,127.37	4,699,089.69	26,143,037.68

Source: Processed Primary Data, 2022

3.3 Analysis of breeding business investment

The results of a feasibility analysis conducted on a PO cattle breeding business with an ownership scale of 2 heads and a 12 percent interest rate have a positive NPV value of IDR. 2,819,815.94. This figure represents the income received over a seven-year period of Rp. 2,819,815.94. The NPV value obtained is positive, indicating that the PO cattle breeding business with two heads is viable.

The BCR value generated by investing in a beef cattle breeding business with ownership of two heads at a 12% interest rate is 1.108. This value demonstrates that every IDR. 1.00 spent results in a net benefit of IDR. 1.108. It can also be said that the net benefits obtained are 1.108 times the costs incurred. The BCR value is greater than the one, indicating that the investment in the beef cattle breeding business is feasible. The results of the analysis of the beef cattle breeding business in detail can be seen in Table 6.

The internal rate of return (IRR) measures a project's ability to generate returns. An IRR of 14.78 percent was obtained in the beef cattle breeding investment business with ownership of two heads. This means that the income generated by investing in the business exceeds the current interest rate. Based on the IRR value obtained, it can be concluded that the business of investing in beef cattle with ownership of two heads is feasible to run. The payback period value obtained in the beef cattle breeding business investment is 7.048 years. This means that after 7 years, 0 months, and 4 days, the project will be able to recoup its investment costs. If the time to recoup investment costs is reduced, the project improves.

Table 6. The results of investment analysis of beef cattle breeding PO with a scale of ownership of 2 heads in Karanganyar Regency

Description	Results
Benefit cost ratio (BCR)	1.108
Net present value (NPV)	Rp. 2,819,815.94
Internal rate of return (IRR)	14.78 %
Payback period of credit (PPC)	7,048 Years

Source: Processed primary data, 2022

3.4 Situation analysis

The development of livestock business in Karanganyar Regency aims to meet the needs for food of animal origin, increase genetic quality, population and meat production so as to be able to provide animal protein from livestock to meet the needs of its own region and neighboring regions (Suresti & R. Wati, 2012). Determining regional priority is the most important thing in formulating a beef cattle development strategy. This needs to be done considering the limitations that are owned by breeders so that it is necessary to implement a strategy taking into account the limitations that are owned, so that the results to be obtained are more optimal. Some of the things that are the focus in implementing a strategy are human resources, the maintenance process, financial ability and the time devoted both to the maintenance and livelihood of animal feed. The selection of breed must be in accordance with the business objectives, genetically and the ability of livestock to vary. The selection of broodstock must have a good body posture (An-nisa N. S et al., 2015). Broodstock of Onggole crossbreed reared by breeders because PO cattle are can adapt to low-quality feed, the environment in the study area and slaughter weights that are by the wishes of the animal market. The cost of feed used in moderation. Assuming the price of elephant grass is Rp500.00/kg, straw 250.00/kg, corn stumps Rp450.00/kg and concentrate in the form of rice bran at 2800/kg. The cost of health is quite cheap. For instance, disease prevention is still very simple by giving eggs and honey to bloated cows. Beef cattle breeding businesses, if labor costs are included in the results of the analysis, will experience losses, while for stable repairs carried out by PO cattle breeders, on average, after 6 years of using the cage. Situation analysis business the development of PO cattle breeding business can be identified from internal and external factors, which include technical and financial aspects as well as other supporting aspects.

Internal Factors. Internal factors influencing the development of beef cattle farming business consist of strengths and weaknesses. The internal strengths of the beef cattle farming business consist of livestock rearing systems, easy to obtain forage feed comes from the farmer's own land, proper financial conditions, livestock mating methods. Internal weaknesses include insufficient information on beef cattle farming, lack of knowledge of breeders, and weak bargaining position of breeders. Purnomo *et al* (2017) stated that when analyzing internal factors for strengths and weaknesses found in PO cattle breeding, it is necessary to consider human resources, financial conditions, operations/production, management, and marketing of cattle PO is a calf/beef cow before starting a business (Purnomo et al., 2017).

External Factors. Opportunities and threats are external factors influencing the development of the beef cattle farming business. External opportunities include the provision of business capital and the use of breeding technology. External threats include livestock diseases, beef cattle competitors from other areas, and uncontrolled livestock sales. These internal and external factors indicate that the beef cattle industry in the three districts remains promising. This prospect cannot be separated from the external opportunities and threats. To determine the future business strategy is to collect these factors into the SWOT matrix, then these factors are combined to get a good development strategy. The complete SWOT matrix can be seen in Table 7.

The results of the analysis of strategies that can be applied to the business of developing PO cattle breeding in Karanganyar Regency, Central Java Province are:

1. SO, strategy. This strategy is made based on the use of all strengths to take advantage of opportunities. There is a cooperative relationship with financial institutions to increase business capital, collaboration with government agencies, especially the animal husbandry service in the application of Artificial Insemination technology and counseling regarding livestock cultivation. This strategy is a priority in the development of beef cattle.
2. ST Strategy. This strategy uses the power possessed by breeders to avoid external threats. Providing counseling on livestock health and medication, increasing livestock productivity by applying better mating technology. This is important so that breeders can run the slaughterhouse business properly and correctly.
3. WO strategy. This strategy can be seen in the utilization of existing opportunities by overcoming breeder weaknesses. Providing training to beef cattle breeders to improve their skills and forming livestock groups to increase bargaining power in beef cattle marketing.
4. WT Strategy. This strategy is defensive in nature, with the goal of minimizing existing weaknesses and avoiding threats. Fostering collaboration with other agencies in the development of beef cattle, as well as increasing breeders' expertise in dealing with competition.

Table 7. Internal Factors and External and Development Strategy

Internals / External	STRENGTHS (S) S1 = Livestock Raising Process S2 = Financial Feasibility of breeding Business S3 = Mating System with Artificial Insemination (IB)	WEAKNESS (W) W1 = No information on beef cattle breeding W2 = Lack of absorption of breeder knowledge W3 = Unskilled bargaining system
OPPORTUNITIES (O) O1 = Market Share O2 = There is an offer. The need for venture capital when starting a business, for example KUR (People's Business Credit). O3 = AI in the livestock breeding process	STRATEGY (SO) 1. There is collaboration to increase the business capital that is run. 2. There must be collaboration with the government in the use and implementation of AI.	STRATEGY (WO) 1. Providing training to increase the skills of breeders in breeding business 2. The importance of farmer/livestock groups in having the function of increasing the selling price of the calves produced to buyers
THREATHS (T) T1 = sales/ slaughter of PO cows T2 = Disease that attacks livestock T3 = There are competitors from outside areas.	STRATEGY (ST) 1. Provide education about livestock diseases and how to handle them 2. Better application of IB techniques	STRATEGY (WT) 1. Establish collaboration (MoU) with other agencies in the development of beef cattle breeding. 2. Providing livestock training in facing competition, especially in feed management.

Source: Processed primary data, 2022

Rimbing *et al* (2019) argued that based on the SWOT analysis in Table 7 above, several alternative strategies are obtained that can be applied in developing beef cattle breeding businesses in the future as follows 1) (Rimbing et al., 2019). increasing the productivity of the heifers to produce calves every year, shortening birth spacing and shortening the weaning age of calves. 2). Improving the genetic quality of livestock with AI technology and naturally. 3). The importance of farmer knowledge through education and training on production management and reproduction of beef cattle. 4). There is attention to improve the quality of Human Resources (HR), through activities like

counseling, education and training in animal feed processing, handling reproductive disorders and livestock health, production and reproduction management, and marketing management. According to Roni *et al* (2021), by using SWOT analysis for marketing strategies, breeders can maximize their strengths and opportunities, allowing them to balance other breeders who produce products in the form of calves from other areas around the beef cattle breeding site (Roni & D.A. Wati, 2021).

4. Conclusion

In concluaion, Beef cattle breeding business in Karanganyar Regency, Central Java Province is still traditional. based on financial business feasibility analysis, it shows an NPV value of Rp. 2,819,815.94; BCR value of 1.108; IRR value of 14.78%; *Pay Back Period* for 8 Years; and the BEP value based on the livestock unit is 5 heads. SWOT analysis in the form of an SO strategy by increasing business capital for the application of AI technology and counseling regarding livestock farming. ST's strategy by providing counseling on livestock health and medication, as well as how to apply better mating technology. The WO strategy is to provide counseling and training in order to improve their skills and form livestock groups. WT strategy by fostering collaboration with various other agencies in the development of beef cattle.

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Daftar Pustaka

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