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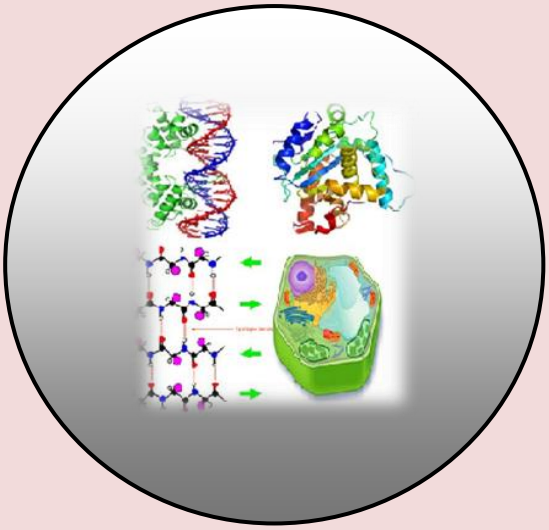

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RESEARCH PAPER

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ABSTRACT

This research aims to determine the financial feasibility of Bali pig farm with extensive farming system. This is a survey method research, held in Nusa Penida Island, Klungkung Regency, Bali Province. The respondent in this research determined by snowball sampling method, and using questioners as data collection tools. The primary data were collected by interview using structure questionnaire, indepth interview, and observations. The secondary data were collect by study literature and searching related documents. The financial feasibility level of native pig farming in Nusa Penida Island was determined based on the analysis of investment criteria, such as: Net Present Value (NPV), Internal Rate of Return (IRR), Net Benefit per Cost (Net B/C), Pay Back Period (PBP),Break Even Point (BEP) and Profitability Index (PI). The results of this research showed that Bali Pig farming in Nusa Penida Island in once period of farming, produced NPVRp 30.615.000, IRR 44,18%; (Net B/C) 3,45; PBP time 1,91 years; BEP time 2,86 years, and PI 3,09. Based on the analysis of investment criteria, native pig farm in Nusa Penida Island are potential to develop as a business farming system.

Keywords: Bali Pig, Financial Feasibility and Nusa Penida Island.

INTRODUCTION

Nusa Penida Island is one of the regions that has a fairly high bali pig population in Bali. There are 13,614 head of bali pig's population in Nusa Penida Island (BPS Klungkung Regency, 2017). Bali pig farming is one of the leading livestock sectors in supporting the community's economy in Nusa Penida (Putri, 2018). Bali pig farming in Nusa Penida is cultivated conventionally, with the main feed are coconut oil home's industry waste. Bali pigs are generally sold as suckling pig material, with higher prices than other species of pigs.

Bali pig farming in Nusa Penida Island are carried out with conventional management. The farmers never recorded costs and revenues of their business. According to Bambang (1991), to measuring the progress and successful of a business reviewed from financial analysis, it is necessary to report financial feasibility analysis. The information about feasibility of business, it is necessary having analysis of investment criteria (Kasmir and Jakfar, 2003).

The aim of this analysis is to find out the potential of business to reach benefit (Yacob, 2003). Therefore, it is deemed necessary to conduct a study on the feasibility analysis of Bali pig farming in Nusa Penida. In addition, information will also be obtained about Net Present Value, Internal Rate of Return, Net Benefit per Cost, Pay Back Period, and Break Even Point.With this information, it is hoped that it can be used as a guide for farmers to develop Bali pig farming in Nusa Penida Island.

MATERIAL AND METHODS

Thissurveyconducted in bali pigfarmwithextensive farming systemat Nusa Penida Island, Klungkung Regency. ThisresearchconductedfromApril – September 2019. Researchsamplepopulationused in this study are sixtyfarmersof bali pig farming in Nusa Penida Island whoisdeterminedbysnowball sampling method.

Investment Criteria Analysis

Analysis of investment criteria in this study are use to determine the feasibility of Bali pig breeding farm. Analysis of investment criteria in this study is used to determine the feasibility of business. The analysis used are: NPV, IRR, Net B/C, BEP, PBP, and PR. The formula used in the analysis of investment criteria are (Ibrahim, 2003):

1. *Net Present Value* (NPV)

$$NPV = \sum_{t=0}^{n} \frac{B_t - C_t}{(1+i)^t}$$

Where:
NPV = Net Present Value
B_t = Benefit in year t (Rp)
C_t = Costs incurred in year t (Rp)
i = Discount Rate (%)
t = Year period (0, 1, 2, ..., 7)

2. *Internal Rate of Return* (IRR)

$$\text{IRR} = i_1 + \frac{NPV_1}{NPV_2 - NPV_1} x(i_2 - i_1)$$

Where:
i_1 = Discount rate that positive NPV
i_2 = Discount rate that negative NPV
NPV_1 = Positive NPV
NPV_2 = Negative NPV

3. Analysis *Net Benefit Cost Ratio* (Net B/C Ratio)

$$Net\frac{B}{C} = \frac{\sum_{t=0}^{n} \frac{B_t - C_t}{(1+i)^t} Untuk(B_t - C_t) > 0}{\sum_{t=0}^{n} \frac{C_t - B_t}{(1+i)^t} Untuk(B_t - C_t) < 0}$$

Where:
B_t = Benefit in year t.
C_t = Costs incurred in year t.
i = Discount Rate (%)
t = Year period (0, 1, 2, ..., 7)

4. *Pay Back Period* (PBP)

$$PBP = T_{p-1} + \frac{\sum_{t=0}^{n} \bar{I}_t - \sum_{t=0}^{n} \bar{B}_{tcp-1}}{B_p}$$

Where:

PBP = Pay Back Period.
T_{p-1} = Year before PBP.
$\bar{I}_t$ = Amount of investments that have been discounted
$\bar{B}_{tcp-1}$ = Amount of investments that have been discounted PBP
$\bar{B}_p$ = Benefit that has been discounted in PBP.
t = Year period (0,1,2, ..., 7)

5. *Break Even Point* (BEP)

$$BEP(tahun) = T_{p-1} + \frac{\sum_{t=0}^{n} \overline{TC}_t - \sum_{t=0}^{n} \bar{B}_{tcp\,1}}{B_p}$$

Where:

T_{p-1} = Year before BEP.
$\overline{TC}_t$ = Total cost that have been discounted.
$\bar{B}_{tcp-1}$ = Amount of investments that have been discounted PBP.
B_p = Benefit that has been discounted in PBP.
t = Year period (0, 1, 2, ..., 7).

6. *Profitability Ratio* (PR)

$$PR = \frac{\sum_{t=0}^{n} B_t - \sum_{t=0}^{n} \overline{OM}_1}{\sum_{t=0}^{n} \bar{I}_i}$$

Where:

B_t = Benefit that has been discounted.
$\overline{OM}_1$ = Amount of Operational cost has been discounted
t = Year period (0, 1, 2, ..., 7).

RESULT AND DISCUSSION

Benefit Flow

This study result show that the benefit obtained from bali pig breeding farm are: piglet and culled sow. The first birth occurin the second month in the second year. Average number of piglet per born are fifteen heads. The piglets are sold at an average age of three months, at Rp 400.000,-/head. The culled sows are sold at the end of breeding period at Rp 28.000/kg or average Rp 2.240.000/head (Table 1).

Table 1. Cash Flow Statement of Bali Pig Breeding Farm (in thousands rupiah).

Description	Year							
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**
In Flow								
Sales								
- piglet♀	-	-	9.773	9.773	9.773	9.773	9.773	9.773
- piglet♂	-	-	10.087	10.087	10.087	10.087	10.087	10.087
- culled sow	-	-	-	-	-	-	-	4.251
Total	-	-	19.859	19.859	19.859	19.859	19.859	24.110
Out Flow								
Investment	380	-	-	-	-	-	-	-
Operational cost		5,68	10.627	10.627	10.627	10.627	10.627	10.187
Total	380	5,68	10.627	10.627	10.627	10.627	10.627	10.187
Net Flow	(380)	(5,68)	9.232	9.232	9.232	9.232	9.232	14.046

Table 2. The Result of Financial Feasibility Analysis of Bali Pig Breeding Farm in Nusa Penida.
(in thousands rupiah)

	Description	Year							
		0	1	2	3	4	5	6	7
A	Benefit Sale:								
	Piglet ♀	-	-	9.773	9.773	9.773	9.773	9.773	9.773
	Piglet ♂	-	-	10.087	10.087	10.087	10.087	10.087	10.087
	Culled Sow	-	-	-	-	-	-	-	4.251
	Total	-	-	19.859	19.859	19.859	19.859	19.859	24.111
B	Cost								
	a. Investment	380	-	-	-	-	-	-	-
	b. Variable Cost	-	5.646	10.590	10.590	10.590	10.590	10.590	10.150
	c. Fixed Cost	-	37	37	37	37	37	37	37
	Total	380	5.682	10.627	10.627	10.627	10.627	10.627	10.187
C	Net Benefit	(380)	(5.682)	9.232	9.232	9.232	9.232	9.232	14.046
	Discount Factor (12%)	1,0000	0,8929	0,7972	0,7118	0,6355	0,5674	0,5066	0,4523
	PV net benefit	(380)	(5.073)	7.360	6.571	5.867	5.239	4.677	6.354
	Cumulative PV Net Benefit	(380)	(5.453)	1.907	8.478	14.345	19.584	24.262	30.615
	PV Investment	380	-	-	-	-	-	-	-
	Cumulative PV Investment	380	380	380	380	380	380	380	380
	PV benefit	-	-	15.832	14.135	12.621	11.269	10.061	10.962
	Cumulative PV Benefit	-	-	15.832	29.967	42.588	53.857	63.918	74.880
	PV Total Cost	380	5.073	8.472	7.564	6.754	6.030	5.384	4.608
	Cumulative PV Total Cost	380	5.453	13.925	21.489	28.243	34.272	39.656	44.264
D	FEASIBILITY								
	NPV (Rp)	30.615							
	IRR	44,21%							
	Gross B/C	1,69							
	Net B/C	3,45							
	PBP (year)	1,91							
	BEP (year)	2,86							
	PI	3,09							

Investment Cost

The investment costs are cost incurred on finance the physical input that can be used for several period of production. Bali pig breeding farm in Nusa PenidaIslandis cultivated conventionally, with an extensive maintenance system. The sows are tied with rope, and piglets are left freely without using a cage. The cost of investment in bali pig breeding farm are: 1) cost of female piglets; 2) rope; 3) place of feed; 4) bucket; 5) knife; and 6) big pan. For the investment goods that have economic period less than 7 years, it has to reinvestment accordance to its economic period

Operational Cost

Table 1 showed the operational costs can be divided into fixed costs and variable costs. Fixed cost component consists of the cost of depreciation of equipment. The variable cost consists of the cost of feed (fresh forage and concentrate), labor, and insemination. Labor costs and the cost of fresh forage is the cost that counts, because the real farmers does not pay the labor and also does not buy fresh forage.

Labor costs accounted for Rp 45,000 / HKSP according to farmer salary. While the cost of forage accounted for Rp 100/kg which is calculated from the length of time and other costs required to seek fresh forage.

Financial Feasibility

This analysis was conducted on conventional pig farming system with farming scale are two sow/farmer. The financial criteria used are NPV, IRR, Net B/C, PBP, BEP, and PI. Based on the financial analysis result, indicating that bali pig farming in Nusa Penida Island are feasible to develop (Table 2).

The result of financial feasibility analysis of bali pig breeding farm in Nusa Penida Island are feasible, with NPV positive: Rp. 30.615.000,-it is mean in one period of farming (7 years) it is can give a net profit Rp 30.615.000,- in the form of present value. The IRR value 44,21%, its mean this bali pig breeding farm is still feasible to the level of discount rate of 44,21%. This is a results of calculation on the discount rate of 12%.

CONCLUSIONS

The conclusions of this study areBali pig breeding farm are feasible to develop as a main business for house wife in Nusa Penida Island.

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