

Business Feasibility of Quail Probiotic: A Study in Bandung Vicinity, West Java, Indonesia

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Abstract---The increasing culinary trend in Bandung encourages businesses to continue to innovate. In addition to diversity, the nutritional value of food is the main requirement to survive in this industry. Probiotic quail livestock is a business with good prospects. This is because the demand for meat and egg quail tends to increase from year to year in line with the increasing population growth and the increasing number of people who are aware of healthy living. An Increase in demand for quail meat and egg needs, this can indicate that business opportunities in the field of quail breeding is still wide open, therefore it is necessary to analyze whether the business is feasible to do. This study examines the opportunities for probiotic quail business development based on entrepreneurial aspects of the Timmons model and aspects of business feasibility studies which consists of legal aspect, market and marketing aspects, financial aspects, technical and technological aspects, and management and human resources aspects. This business development plan starts based on the Payback Period criteria, Net Present Value, Profitability Index and Internal Rate of Return. The results of the study showed that the investment for the development of probiotic quail broiler businesses was Rp. 232.49 million, - using loans through banking and private capital. Positive NPV of Rp. 184.279188., IRR 57%, NPM 20.32%, and return on investment for 1 year 8 month 20 days. These results indicate that the development of probiotic broilers is feasible because it can provide benefits.

Keywords---Probiotic quails, Business feasibility studies, PP, NPV, PI, IRR

I. PRELIMINARY

The agricultural sub-sector which currently has considerable potential is livestock. The influence of the large livestock sub-sector on the lives of Indonesian people is inseparable from the basic function of the livestock sub-sector itself in the fulfillment of food and nutrition, especially the fulfillment of animal protein needs.

Besides the livestock sub-sector is one of the sources of economic growth for the agricultural sector at this time, this is evidenced by the Farmer Exchange Rate (NTP) in the period 2013 to 2018 an increase of 0.93 percent with the highest NTP is 113.23 percent achieved farmers in 2018. This means that in 2018 farmers the livestock sub-sector has increased in terms of trade or purchasing power of livestock products of large, small livestock, poultry and various livestock commodities increasing (BPS West Java, 2018). To measure the fulfillment of livestock commodities to be achieved, the DG PKH set indicators of achievement in 2016 to 2019. These indicators are presented in table 1.

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Table 1: *The Main Performance Indicators, 2016-2019 Year (000 Tons)*

Nu.	Strategic Targets	Targets (Years)			
		2016	2017	2018	2019
1	Beef and Buffalo Product	588,56	639,61	694,96	755,04
2	Other Livestock meat product	3.678,87	3.796,88	3.969,57	4.167,51
3	Eggs Product	3.393,36	3.536,86	3.655,00	3.770
4	Milks Product	850,77	910,57	980,88	1.063,56

Source: Performance Report 2018, Ministry of Agriculture Directorate General of Animal Husbandry and Health.

Fulfillment of livestock origin food in 2018 still cannot meet the target set by the Directorate General of PKH, for example in other livestock production, from the target of 3,969.57 thousand tons, it has only reached 2,896.11 thousand tons or the achievement is still around 72.96 percent and in Egg production has a target of 3,655.00 thousand tons, which has only reached 2,290.02 thousand tons, equivalent to 62.65 percent. For data on the achievement of DG PKH targets can be seen in table 2.

Tabel 2: *Main Performance Indicators 2018 (000 Tons)*

Nu.	Strategic Targets	Targets	Realization	Percentage
1	Beef and Buffalo Product	694,96	568,77	81,84
2	Other Livestock meats Product	3.969,57	2.896,11	72,96
3	Eggs Product	3.655,00	2.290,02	62,65
4	Milks Product	980,88	974,78	99,38

Source: Performance Report 2018, Ministry of Agriculture Directorate General of Animal Husbandry and Health.

From the above data it is known that all livestock production in 2018 still cannot meet the target, especially other livestock production and egg production still lacks around 27.04 percent and 37.35 percent which is still far behind from beef and buffalo production as well as from production milk.

That means there are still opportunities for all livestock groups including various livestock and egg-producing poultry groups to contribute to meeting the target set by the government for the following year, given the 2019 fulfillment target for livestock commodities in 2019 is much greater.

Livestock sub-sector which is currently being developed by several regions in West Java, namely various livestock, one of which is Quail Bird. Quail (*Coturnix coturnix japonica* L.) began to be widely cultivated because it has many advantages including producing meat and eggs at the same time, land for maintenance is not very extensive, the required capital is relatively small and has a high nutritional value (Vali, N; 2008).

The quail cultivation began to favor the community both as home breeders and professional breeders. The following data is the production of quail meat and eggs from 2015 to 2018 in the Bandung area.

Table 3: *Meats and Quail Eggs Product in Bandung 2015-2018 (Tons)*

No.	Livestock Results	Years			
		2015	2016	2017*	2018*
1	Meats	5,09	5,45	8,62	9,91
2	Eggs	51,18	51,48	51,77	52,07

Source: Statistics Report of the Department of Food and Animal Husbandry of West Java Province 2016.

In the statistics of animal husbandry in West Java Province recorded total meat and quail egg production in Bandung in 2018 is estimated to reach 9.91 and 52.07 tons per year. But data from the field explains that demand for meat and quail eggs is greater than that produced.

From interviews with several breeders in Bandung who are members of the Sunda Tatar Farmers Association and with independent breeders, namely CV Nyampak Jaya Farm and from the results of research by Faturohman et al (2014), data on demand for meat and quail eggs in the Bandung area are presented in Table .

Table 4: *Meats and Quail Eggs Demand in Bandung 2018(Tons)*

No.	Livestock Results	Years		
		Demand	Supply	Deficiency
1	Meats ¹	67	9,91	57,09
2	Eggs ²	322,3	52,07	270,23

Catatan :

¹ Interview Result with Breeders

² Research Results

Source: Statistics Report of the Department of Food and Animal Husbandry of West Java Province 2016

The high demand for meat and quail eggs is not matched by the ability to produce these livestock products, so as to fulfill the demand so far, it has been supplied from other regions such as Central and East Java. That is because the distribution of quail livestock is largely concentrated in Central and East Java, so the potential for developing quail cattle in West Java is still quite large. Currently there are three companies that provide broilers and laying birds in the Bandung area, namely Ekualo in Cimenyan, AR Farm in Lembang and CV Nyampak Jaya Farm in Cilengkrang.

Not only as a source of quail animal protein also has a complete nutritional content. Nutritional components contained in quail meat are presented in the following table 5.

Table 5: *Nutritional Content of Meat and Quail Eggs(per 100 grams)*

Nu.	Nutrition Component	Meats	Eggs
1	Protein	25 gram	13 gram
2	Fat	14 gram	11 gram
3	Caloris	227 Kilocalories	158 kilocalories
4	Cholesterol	86 milligrams	844 milligrams
5	Sodium	52 milligrams	141 milligrams
6	Potassium	216 milligrams	132 milligrams
7	Vitamin	A, D, B12, C, dan B6	A, D, B12, C, dan B6

Sumber: Food Composition Databases, United State Department of Agriculture Agricultural Research Service.
<http://fdc.nal.usda.gov/fdc-app>.

From the above data it is known that animal protein contained in meat and quail eggs is quite high, it will be interesting for industrial players providing animal protein sources from poultry to switch or increase their business. So as a business actor who is just starting out, it is necessary to make products that are superior both in terms of physical and benefits.

The order to create customer attraction there needs to be innovation, one of the innovations that can be done is to create a probiotic quail farm in Bandung.

Quail probiotics are quails that are maintained by utilizing biotechnology, namely by providing probiotics in drinking water as a trigger for growth and immunity of the livestock body. Adding probiotics to feed or drinking water is considered to be able to increase productivity and increase the efficiency of feed use, probiotics can also reduce mortality, eliminate antibiotic residues and reduce the smell of impurities.

This probiotic is used as a substitute for vaccines, growth hormones and antibiotics which are quite dangerous for the body if consumed in the long run. While probiotics itself is a product that contains non-pathogenic living microorganisms, which are given to animals or humans to improve growth rates, feed conversion efficiency, and health (Stark and Wilkinson; 1989).

In connection with the above, it is necessary to conduct research on "Feasibility Analysis of Bird Livestock Business Quail (*Coturnix Conturnix Japonica*) Probiotics".

II. ANALYSIS DESIGN AND THEORY

The business plan is carried out to find out the situation that can be observed so that it can then be made a business feasibility analysis by comparing the aspects of business feasibility with the Timmons Model. According to Suliyanto (2010: 9) factors that must be taken into account in conducting a business feasibility analysis of a new business plan are based on several aspects including; 1) Legal Aspects, 2) Market and Marketing Aspects, 3) Financial aspect, 4) Technical and Technology Aspects, and 5) Management and Human Resources Aspects.

Results of the Business Feasibility Analysis will be described using Timmons criteria which are based on three aspects, namely aspects of market issues, economic problems, and management problems.

III. RESEARCH METHODS

III.I. Research Methods

In this research the method used is descriptive qualitative analysis method. This method aims to obtain an overview of probiotic quail livestock business planning by examining the feasibility aspects and comparing them to the Timmons criteria.

The type of data in this study consisted of primary data and secondary data. Primary data collection techniques are by conducting interviews with farmers and quail meat consumers, and direct observation of the problem in question. Whereas the primary data were obtained from literature studies and breeders as members of the Sunda Quail Quail Paguyuban as breeders and traders as much as 15 respondents with the Purposive Sampling method.

IV. RESULTS AND DISCUSSION

This probiotic quail livestock business is a new business which is an innovation from a company in the field of animal husbandry called Pro Quail Farm. The name Pro Quail itself is taken from the basic names Probiotic and Quail, which means quail that produces meat and eggs containing probiotics or better known as semi-organic quail.

For companies that will carry out certain business strategies in which there is a commitment to make capital expenditures in large amounts for a long time, it needs to be assessed in advance. Starting from the aspects of law, market and marketing, finance, engineering and technology, as well as management and human resources.

IV.I. Legal Aspects

Pro Quail Farm is a business that is incorporated as an Individual Company, because it is owned by one person and is fully responsible for the risks and activities of the company.

In establishing an individual company there were no laws and regulations, all that was needed was an application permit from the local licensing office.

V. MARKET AND MARKETING ASPECTS

a. Market Aspects

Pro Quail Farm company produces carcasses of male and female quail meat as its main product of 13,720 per year. The demand for quail meat in the Bandung region reaches 8,000 head per year and is only filled by competitors as many as 1,153 head per year. So the market potential for running a quail carcass business in the Bandung area is huge. While eggs to be produced every day are as many as 1,787,128 eggs per year or 19.66 tons, while demand for eggs in the Bandung area is 322.3 tons per year and has only been met by 52.07 tons, so the potential of eggs that can be sold.

b. Price

The following is the price fixing set by Pro Quail Farm, including the following indicators.

- List Price

From the male carcass meat and egg products are determined by the method of "Quality Results" while for other products follow the prices on the market, namely:

1. Male quail carcass Rp.9,000 per head

2. Female quail carcass rejects Rp. 6,000 per fish

3. Egg consumption is Rp. 300, - per egg

4. Abnormal eggs Rp.100, - per egg

5. Manure (faeces) Rp.160, - per kilo gram

- Quantity Discount

Quantity based discounts will be given to customers who make a certain amount of purchases.

- Allowances (special discounted rates)

Special discounted prices are given for purchasing products that are intended to be resold.

c. Place

The Pro Quail Farm production site is the place where the maintenance process is carried out and the place where the sale and purchase transactions are carried out. As for the sale Pro Quail Farm serves individual purchases that come to the farm directly and other sales carried out in all regions of Bandung.

d. Promotion

Promotion conducted by Pro Quail Farm is by combining Personal Selling with Sales Promotion, which is doing direct marketing to consumers, especially to owners of restaurants, tents or culinary businesses that provide processed quail meat products and by including product samples to prospective buyers in the hope they will buy and to ensure the quality of carcass and egg products marketed are new products on the market. So that the promotion process is more focused on product introduction and education about the benefits of meat and quail eggs.

V.I. Financial Aspects

- Capital needs

Based on equipment and operational costs, the total project cost for the development of a Pro Quail Farm company is presented in Table 6 below:

Table 6: Total Project Cost

No	Item	Amount
1	Selling of Land	45.000.000,-
2	Cage	34.000.000 ,-
3	Building	15.750.000 ,-
4	Licensing	6.000.000,-
5	Operating Expens	56.740.000,-
6	Vehicle	75.000.000,-
Total		232.490.000,-

From the calculation of the funds needed for the initial investment of the Pro Quail Farm company is Rp.232,490,000. Where the funds obtained from bank loans in the amount of Rp. 200,000,000 and - Rp. 32,490,000, - are private property.

- Projected Revenue

Pro Quail Farm's business income projection in the form of profit and loss projections is explained in the following table 7:

Table7:Income Statement

No	Description	Tahun (Rp)				
		1	2	3	4	5
1	Sales Target	714.626.920	714.626.920	755.103.720	755.103.720	755.103.720
2	Production Cost	407.530.881	462.530.880	473.612.968	473.612.968	473.612.968
3	Gross Profit	307.096.039	252.096.040	281.490.752	281.490.752	281.490.752
4	Operational Cost	72.143.547	72.143.547	72.143.547	72.143.547	72.143.547
5	EBIT	234.952.492	179.952.493	209.347.205	209.347.205	209.347.205
6	Other Expenses	71.231.349	71.231.349	73.255.189	37.755.186	37.755.186
7	Net Profit	163.721.143	108.721.144	136.092.016	171.592.019	171.592.019

Cash flow in Pro Quail Farm company, there are saw in eight table below:

Table8:Cash Flow

Description	Tahun					
	0	1	2	3	4	5
Cash In	232.490.000	714.626.920	714.626.920	755.103.720	755.103.720	821.666.220
Cash Out	232.490.000	550.905.777	606.545.776	619.651.704	584.151.701	619.351.701
Balance	-	163.721.143	108.081.144	135.452.016	170.952.019	202.314.519

The data above shows the cash flow that will occur within the next five years. In the cash flow it appears that the investment capital provided can meet all costs required for the project for five years. From the results of the feasibility analysis it is known that, business planning meets the business eligibility criteria with the following details:

a. Payback Method

Return on investment of analysis results is known to take 1 year 8 months 20 days. That means according to the rate of return on investment the business is feasible to run, because the investment capital recovery period is shorter than its economic age.

b. Net Present Value (NPV)

From the analysis it is known that the probiotic quail livestock business can be classified as a profitable investment because the Net Present Value (NPV) generated is Rp. 184,279,188, - meets the criteria that the Project is considered feasible if the NPV is positive with a value of more than zero (NPV > 0).

c. Profitability Index (PI)

The business plan is declared feasible to run based on the criteria of the ratio or the ratio between the total present value of cash flow during its economic life and initial project expenditure, because the value of the Profitability Index (PI) generated is more than or equal to one (PI > or = 1.00), i.e. at 1.24.

d. Internal Rate of Return (IRR)

According to the interest rate or the rate of return that would make the NPV equal to zero, this business is feasible because it has a greater IRR value of 57 percent of the percentage of the cost of capital (loan interest) which is only 17.75 percent. So the rate of return exceeds the interest expense that must be paid (IRR > 18%).

4. Technical and Technology Aspects

Projection of the business carried out by Pro Quail Farm is 5 years. Male quail can produce a suitable carcass of meat consumption at the age of 49 days, so that in one year it can breed quails for up to 7 maintenance periods.

While female quails are not productive in producing eggs at the age of 1 year, that means in the 7th period or at the age of 1 year new female quails can produce carcasses of meat.

For the number of male quails that are cultivated each period amounting to 1,000 tails, while female quails that are maintained in the first period of 7,000 tails and the quail will be maintained until the expiry or 7 periods. The quail mortality ratio is 2-3 percent.

The technology used by Pro Quail Farm in the process of raising quails is to use "Biotechnology". Namely by using bacteria contained in herbal food ingredients, which function as feed additives. Herbal food ingredients will be processed into a liquid that will be processed mix with livestock drinking water. Feed additives are known as probiotics. To find out the overall results of the analysis with the provisions of the Timmons model criteria can be seen from the Quick Screen table 9.

The results of the Timmons model analysis show that the overall business of Pro Quail Farm shows high potential, this indicates that the Pro Quail Farm business is very feasible to run because it will generate profits. A growing and growing market share will provide positive business results for Pro Quail Farm to run and develop the business.

5. Management and Human Resources Aspects

Pro Quail Farm's management of the quail farm business is needed by Human Resources who have competence in the specified field. The following are the HR determined by Pro Quail Farm.

- Position and Job Description Determination

Position determination is based on ownership, while Job Description is determined based on the capabilities of the stakeholders.

Table9: Quick Screen Pro Quail Farm

Variable	Sub Variable	Pro Quail Farm	Assessment
Business Meats Quail.	Demand and Supply	Identified	High Potential
	Customer Market		
	Customer	Affordable and accepting products	High Potential
	Payback Period	1 year, 8 month and 20 day. (PP > 1 Tahun)	Middle Potential
	Added Value	IRR 57% (IRR > 40%)	High Potential
	Rate of Market Development	Predicted to continue to develop according to the trend	High Potential
Competitive Advantage of Quail Broiler Business	Rate of Gross Profit	38,02% (>40%)	Medium Potential
	Fixed Cost and Variable Cost	High Enough	Medium Potential
	Price and Cost Controlling Rate	Strong Enough	Medium Potential
	Network	Broad and Strong	High Potency
Variable	Sub Variable	Pro Quail Farm	Appraisal
The establishment of the value of Quail Broiler Business	Earning After Taxes	20,32% (>10%)	Medium Potential
	Time of Positive Cash flow	< 2 years	Medium Potential
	Pay Back Period Investment	ROI 20,32 % (< 20%)	Medium Potential

- Organizational structure

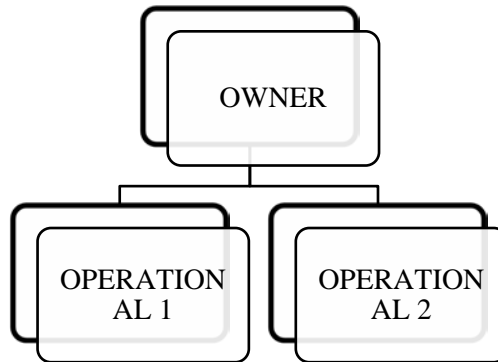


Figure 1: Pro Quail Farm Organizational Structure

VI. CONCLUSIONS AND RECOMMENDATIONS

VI.I. Conclusion

Based on the results of the analysis of the feasibility study on the probiotic quail broiler business, the conclusions and suggestions can be drawn:

1. Aspects of the Business Environment From the analysis results it is known that the lifestyle of the Bandung community is currently following a developing trend. One of them is a change in people's behavior that is increasingly concerned about healthy living, one of the trends that is being undertaken by the people of Bandung, which is increasingly maintaining a healthy diet by consuming healthy food. This is an opportunity for Pro Quail Farm which provides animal-based foods in the form of probiotic meat and quail eggs that are rich in nutrients and free of chemical residues.

2. Marketing Aspects The marketing concept that will be carried out by Pro Quail Farm is to focus on selling to resellers of restaurants, restaurants and tent shops in the Bandung area.

VI.II. Financial Aspects

When viewed from a financial perspective, Pro Quail Farm has a high enough profit, namely a net profit of 20.32 percent, and NPV > 0 which is Rp. 184,279,188 is classified as a quite profitable investment. The rate of return occurs at 1 year 8 months 20 days, it is classified as fast in return on investment than originally planned returns in the third year. Thus it can be stated that this probiotic quail livestock business is feasible to run.

VI.III. Management and Resource Aspects

The resources owned by Pro Quail Farm are very qualified, because the employees who work are those who have the ability and knowledge quite well in the field of animal husbandry.

VI.IV. Suggestion

The feasibility analysis of this probiotic broiler quail business is the first time the research has been conducted or there has been no prior research examining the business. Thus from the results of the research conducted, there are suggestions for the authors themselves and for researchers who will continue the research but with the broader aspects of the study.

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