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"Contribution of Livestock Production on Food Sovereignty in Tropical Countries"



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Proceedings the 7th ISTAP

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Contribution of Livestock Production on Food Sovereignty in Tropical Countries



September 12-14, Yogyakarta, Indonesia

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










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






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Financial Feasibility Study of Establishment of Poultry Feed Mill in Bintuni District West Papua Province

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ABSTRACT

This study was conducted to determine the financial feasibility of establishing poultry feed mill in Bintuni Regency using local raw materials compared to using raw materials from Surabaya. Primary data were obtained from key respondents including poultry farmer, Head of Agriculture and Livestock Service, Head of District, Head of Village, and Head of Tribe, and suppliers who became poultry products suppliers. Secondary data were obtained from the Office of Agriculture and Animal Husbandry of several districts, Animal Quarantine Office, Department of Industry and Cooperative. Indicators of financial feasibility were measured by Net Present Value, Internal Rate of Return, and Net Benefit/Cost. Data were analysed with descriptive method using tabulation. The results showed that the establishment of feed mill using feed ingredients from Surabaya had a higher feasibility value than using local materials. The NPV, IRR and Net Benefit/Cost of feed mill from Surabaya were IDR 4,388,875,361,47, 28,68% and 1,09 while local ingredients were IDR 3,699,625,972,96, 26,07%, and 1,07, respectively. The result of study recommends to the local government to increase agricultural production by expanding cultivation areas of corn, soybean and paddy, thus the function of local farmers can be improved as a permanent supplier.

Keywords: Financial, Feasibility, Feed mill, Poultry, Papua

INTRODUCTION

Bintuni is one of the regencies in West Papua which was expanded from Manokwari Regency in 2003. The increase of population in Bintuni brings the consequences of increasing needs of livestock products including chicken and eggs. However, the increasing of population has not been offset by increased production of those products. Data from BPS Provinsi Papua Barat (2014) showed the presence of imported frozen chicken and eggs to supply the need of population in regency of West Papua was about 2,750,814 and 4,451,801 kg each year. Poultry commodities such as broiler, local chicken and laying hens have been kept in Bintuni, but the number of them has not been sufficient. Constraints faced in the development of poultry are the difficulty of getting a continuous feed at an economical price. Therefore it is necessary to study feasibility of establishment of feed mill in Bintuni.

To make a good animal feed, it must be supported by the use of quality feed raw materials. Based on data from BPS Provinsi Papua Barat (2014), most of the farmers in Bintuni cultivated corn, soybean, and rice with each production of 0.18, 0.15 and 4 tons per hectare, respectively. In

addition, 106 households work in the fisheries sector that consist of 70 households in the marine fisheries sector and 36 households in the terrestrial fisheries sector. The area of maintenance of terrestrial fisheries in Bintuni District is 40,000 m², with production is about 53,782 kg/year, while production of marine is about 35 ton per year. In addition to fish, Bintuni is a major producer of shrimp and crabs. Production of shrimp per day is about 1 ton. Erwan and Resmi (2004) in Mairizal (2010) reported that shrimp waste contained 46.2% crude protein, 4.2% ether extract, 16.85% crude fiber, 5.72% calcium, 1.77% phosphorous and 2397 kcal/kg metabolism energy. This waste is potentially to be used in chicken ration. The availability of feed raw material is a good potential for the establishment of animal feed mill. The purpose of the research was to determine the financial feasibility of feed mill establishment as supporting the development of poultry feed mill in Bintuni District.

MATERIALS AND METHODS

This feasibility study used survey method with in-depth interview technique and makes direct observations in the field. The data of commercial feed formula was obtained by comparative study to the factory in Wonokoyo Surabaya. Primary data on availability of raw material of corn, soybean, and bran was observed by interviewing on 20 farmers who live in Bintuni, Manimeri, Sumuri, Babo and Tomu Districts as respondents. Survey of fishery waste was conducted on 7 respondents of fishermen who have good fisheries knowledge and 2 shrimp factory in Bintuni Regency. Secondary data was obtained from the Office of Agriculture and Animal Husbandry of some regency, Animal Quarantine Office, Department of Industry and Cooperative, and some related literature sources. Financial Feasibility was calculated using IRR, B/C and NPV feasibility indicators (Gittinger, 2000)

RESULTS AND DISCUSSION

The absolute requirement in the development of poultry in a region is the availability of quality, continuous and economical feeds. The establishment of feed mill in Bintuni is one of the solutions offered to support the development of chicken livestock in Bintuni. The results of feasibility study of feed mill in Bintuni can be seen in Table 1 to 4.

At present in Bintuni the availability of animal feed is still far from sufficient. Based on this condition, for the development of broiler and laying chicken business the first step that needs to be done is to establish feed mill. Once the animal feed mill operates, it will be followed by the development of broiler and laying business.

Here is designed to establish a feed mill with a production capacity of 2,000 kg per day. Equipment components, costs, raw materials required by the feed mill are listed in Table 1.

The type of feed mill is a mini feed mill with a production scale of 2 tons of feed/day. Type of feed produced is broiler feed (starter phase and finisher phase) as designed using several assumptions ie. Total Investment of buildings and equipment are IDR 6.496.350.000. Its expected has a lifetime of 10 years. After 10 years renovation and replacement of new equipment is required. Total operational cost are IDR 610.250.000 per year

The origin of raw materials comes from Surabaya and it has calculated the cost of transportation by boat (container 20 feet). Total cost of transportation using container including

insurance and local transportation was about IDR 43,000,000. The container loaded 440 sacks of raw materials.

The ration was designed for broiler starter with 22% crude protein, 3,000 kcal/kg of metabolic energy, and for broiler finisher with 20% crude protein and 3,100 kcal/kg of metabolic energy. Protein content and metabolism energy is a necessary requirement for the growth of chicken according to the phase of production. The feed ingredients used in the ration formulation are optional depending on the 2 types of feed formulations provided. Formulation of ration I is a ration that uses local material in Bintuni. Formulation of ration II is a ration using commercial concentrate from PT. Wonokoyo Jaya Corporindo, Surabaya, with additional feed ingredients ordered from the same factory. There is a hope that the additional feed ingredients used will be gradually replaced by local agricultural products in Bintuni.

Table 1. Formulation of chicken ration using local material in Bintuni

<i>a.</i> Ration of starter phase					
Materials	Components		Time (days)	Price (IDR)	Total (IDR)
	(%)	(kg)			
Corn	43.75	292	288	8000	672,000,000
Rice Bran	15.00	100	288	3000	86,400,000
Waste of fish	03.00	20	288	5000	28,800,000
Waste of shrimp	08.00	53	288	5000	76,800,000
Soybean	30.00	200	288	10000	576,000,000
Mineral mix	00.25	2	288	57150	27,432,000
Total	100.00.00	667			1,467,432,000
<i>b.</i> Ration of finisher phase					
Materials	Components		Time (days)	Price (IDR)	Total (IDR)
	(%)	(kg)			
Corn	54.75	730	288	8000	1,681,920,000
Rice Bran	08.00	107	288	3000	92,160,000
Waste of fish	02.00	27	288	5000	38,400,000
Waste of shrimp	10.00	133	288	5000	192,000,000
Soybean	25.00	333	288	10000	960,000,000
Mineral Mix	00.25	3	288	57150	54,864,000
	100.00.00	1333			3,019,344,000

Table 2. Formulation of chicken ration using raw material from Surabaya

a.	Ration Starter phase	Composition		Days	Price (IDR)	Total (IDR)
	Materials	(%)	kg			
	Commercial concetrate	39.47	263	288	10125	767,296,800
	Corn	56.78	379	288	6350	692,261,760
	Rice bran	0.17	25	288	5350	38,520,000
		100.00	667	288		1,498,078,560
b.	Ration Finisher phase	Composition		Days	Price (IDR)	Total (IDR)
	Materials	(%)	kg			
	Commercial concentrate	33.27	444	288	10125	1,293,537,600
	Corn	65.73	876	288	6350	1,602,760,320
	Rice bran	01.00	13	288	5350	20,544,000
		100.00	1333	288		
	Total		2000			2,916,841,920

In one period of broiler production of 35 days it will be required ration for starter and finisher phase with a ratio of 33% and 67% (every 100 broiler chickens were fed 300 kg or 6 sack of feed consisted of 2 sacks of starter phase and 4 sack of the finisher phase), therefore the production of feed mill to be established in Bintuni uses a production ratio of 33% and 67%.

Table 3. Output of feed mill each year

Components	Composition (%)	Volume (day)	Time (days)	Price (IDR)	Total (IDR)
Ration of starter phase	33,00	2000	288	11000	2,112,000,000
Ration of Finisher phase	67,00	2000	288	11000	4,238,666,667
Total of output	100,00				6,350,666,667

Table 3 represents the recapitulation of the feasibility values of the mill using the three types of feed formula. Of the three indicators used, Net Present Value (NPV), Internal Rate of Return (IRR) and Benefit Cost Ratio (B/C) indicate that three types of business (three types of ration) is feasible. In this case the feed mill business using a ration formulation with concentrate has the best feasibility value.

Table 4. Feasibility indicators of establishment of poultry feed mill in Bintuni

Type of Ration	NPV (IDR)	IRR (%)	B/C
Ration with local raw material	3,699,625,973	26.07751	1.077
Ration with Surabaya raw material	4,388,875,361	28.68034	1.093

NPV value of feed mill using raw materials from Surabaya was IDR 4,388,875,361 (positive value) it means the business generates positive cash flow. It shows that the business is able to generate profits. Similarly, the IRR of 28.68034% indicates that the business can generate

profits above the prevailing bank interest (12%). The B/C value is greater than 1 indicating the business is feasible to be implemented.

Although the feasibility value is not large enough but in assessing the feasibility of a project is not only considered of tangible benefits but also intangible benefits (Reksohadiprodjo and Brodjonegoro, 1997). The establishment of the feed mill will provide a market for the farmers as suppliers of raw materials (corn, paddy and soybean). With the certainty of the purchase of production, local people are expected to increase their agricultural production to a more economical scale. In addition with the feed mill factory the availability of animal feed can be more assured continuity.

At the beginning of the business it is planned to use a concentrate from outside of Bintuni with the hope that the raw materials can be substituted by local feed material.

CONCLUSSION

The establishment of feed mill using feed ingredients from Surabaya had a higher feasibility value than using local materials. The NPV, IRR and Net Benefit/Cost of feed mill from Surabaya were IDR 4,388,875,361,47, 28,68% and 1,09 while local ingredients were IDR 3,699,625,972,96, 26,07%, and 1,07, respectively. The result of study recommends to the local government to increase agricultural production by expanding cultivation areas of corn, soybean and paddy, thus the function of local farmers can be improved as a permanent supplier.

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