

Prosiding 1 2019

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Submission date: 18-Mar-2022 11:11AM (UTC+0800)

Submission ID: 1786827267

File name: Prosiding_1_Adrizal_2019_IOP_Conf._Ser.pdf (837.13K)

Word count: 1501

Character count: 7021

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To cite this article: Adrizal Adrizal *et al* 2019 *IOP Conf. Ser.: Earth Environ. Sci.* **287** 012012

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Utilization of local feed to support new entrepreneur in poultry business

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Abstract. Nowadays, Indonesian poultry business dominated by big enterprises like Charoen Phokpand Indonesia, Japfa Comfeed, Gold Coin etc. The enterprises depend on imported feedstuffs, so the feed price is very volatile because influenced by international trade and dollar value change. The condition cause the new enterprises difficult to survive, so that it will be reasonable for them to utilize local feed. The objectives of the research were utilization of local feedstuffs in ration formulation in order to minimize feed cost and ensure availability of feed continuously.

Keywords – feed, price/cost, entrepreneur, poultry business.

1. Introduction

Nowadays the poultry business in Indonesia is dominated by large companies such as Charoen Phokpand Indonesia, Japfa Comfeed, Gold Coin and others. The companies producing ration use feed stuffs mostly imported products. This causes the price of ration became unstable and tends to rise in accordance with the exchange rate of the dollar against the rupiah. The condition causes a small scale enterprises especially that managed by new entrepreneurs being difficult to grow. On the other hand the local feed ingredients available in sufficient quantities to support ventures with small scales, but how is the optimal use of each feed stuff has not been studied in real. This research aims to formulate rations using local feed materials for three types of poultry i.e. broiler, local chicken and duck.

2. Materials and methods

The research material was used to formulate rations are corn, rice bran, coconut cake, soy beans, dried fish, bone meal and topmix. The rations were formulated for broiler, local chicken and duck in starter period. The data used were price, nutrient content, limitations, as well as nutritional needs each of poultry. The feed ingredient price data obtained through the survey to the source of raw materials in the city of Padang. The data content of nutrition and nutritional needs as well as limitations on the use of the feed materials obtained by the study of literature. Ration formulation is done with the algorithm of fuzzy linear programming using Microsoft excel software which comes with solver function. The following mathematical model was applicated to formulate the rations [1].

$$\text{Minimize } Z = \sum_{i=1}^n C_i X_i$$

$$\text{Subject to : } \sum_{i=1}^n \sum_{j=1}^m a_{ij} X_{ij} \geq, \leq \text{ or } = L_j$$



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Where:

Z = cost of complete ration

n = the number of feedstuffs

C_i = cost of i^{th} feedstuff

X_i = Percent of i^{th} feedstuff

m = number of constraints

a_{ij} = technical coefficient of i^{th} feedstuff j^{th} constraint

L_j = j^{th} constraint limitation

3. Result and discussions

3.1. Identification of Local Feedstuffs

The result of identification of local identification presented on Table 1. On the table it looks that there are 10 kinds of potential feed ingredients used as a constituent of rations. As an energy source is corn and rice bran, while as a source of protein is the coconut cake, soybean and fish meal. On the table was also seen that the soybean in addition to serve as a source of protein, also serves as an energy source because of its high content of ME also. Bone meal, crab shells, limestone and topmix serves as a source of minerals.

3.2. Ration Formula

Ration formulation results for three kinds of poultry kept by new entrepreneurs are presented in Table 2. In the table was presented that the most expensive ration was broiler ration and followed by ducks and local chicken. The price of chicken broiler rations (IDR 4,103/kg) caused by high nutrient needs. The broiler chicken require minimum 22% protein and ME 3000 kcal/kg. Ducks just need protein by 17% and 2800 kcal/kg, so the ration price not too high i.e. IDR 3,470/kg. The cheapest ration was local chicken i.e. IDR3,185/kg because it requires only as many as 16% protein and 2800 kcal/kg of ME. Based on the results of the ration formulation It is evident that the cost of ration closely relate with nutrient content of the ration especially protein and ME.

Table 1. Price and nutrient content of local feed stuffs.

No	Feedstuff	Price (IDR/kg)	ME (Kcal/kg)	Nutrient content (%)							
				CP	Fat	CF	Ca	P	Lys	Meth	Trip
1	Corn	3000	3430	8,7	3,9	2	0,02	0,3	0,2	0,18	0,1
2	Rice brand	2000	1630	13,5	13	12	0,12	1,5	0,8	0,29	0,1
3	Coconut cake	2600	1540	21	1,8	15	0,2	0,6	0,6	0,29	0,2
4	soybean	8000	3510	38	18	5	0,25	0,6	2,4	0,51	0,55
5	Fish meal	5000	2970	50	8	1	5,5	2,8	5	1,8	0,8
6	Bone meal	4000					24	12			
7	Crab shells	4000	1870	31	2	11	15	1,6	1,4	0,5	0,3
8	Limestone	1000					40				
9	Topmix	10000									

On the table was also seen that a large part of energy source were supplied by corn. More half of the ration comes from corn. Other energy sources are soy bean, nevertheless because it was expensive, only the broiler using it, while local chickens and ducks did not use. Protein source was dominated by dried fish and added with coconut cake and rice bran. Soy beans in addition to serve as a source of energy also serves as a source of protein. Other materials such as crab shell, limestone and premix serves as a source of minerals.

Table 2. The results of the feed formulation using local materials for three kinds of poultry.

No	Feedstuffs	Formula (%)		
		Broiler	Local Chicken	Duck
1	Corn	51.7	57.0	55.3
2	Rice Bran	2.1	19.9	18.9
3	Coconut cake	14.5	7.7	8.1
4	Soy Beans	10.1	0.0	0.0
5	Dried fish	20.0	12.8	15.3
6	Crab shells	1.0	1.0	1.0
7	Limestone	0.0	1.0	1.0
8	Premix	0.5	0.5	0.5
Total		100	100	100
The price (IDR/kg)		4,103	3,185	3,470
No	Nutrient Content			
1	ME (Kcal/Kg)	3000	2800	2800
2	CP (%)	22.0	16.0	17.0
3	Fat (%)	6.0	6.0	6.0
4	CF (%)	4.3	4.9	4.8
5	Ca (%)	1.3	1.3	1.4
6	P (%)	0.9	0.9	0.9
7	Lysine (%)	1.5	1.0	1.1
8	Methionine (%)	0.6	0.4	0.5
9	Tryptophan (%)	0.3	0.2	0.2

4. Conclusion

Broiler ration, local chicken and duck can be formulate with feed local. The price of rations were IDR 4.103, 3.185 and 3.470 for broiler rations, local chicken and duck successively.

5. References

- [1] Adrizal dan Marimin. 2004. Aplikasi Fuzzy Linear Programming untuk Optimasi Formulasi Ransum Unggas. Jurnal Keteknik Pertanian 18: 77-85.

Acknowledgments

Thanks presented to the Direktorat Penelitian dan Pengabdian Masyarakat, Kementerian Riset, Teknologi, dan Pendidikan Tinggi has financed these activities in accordance with the contract of No. 001/SP2H/PPM/DRPM/2018.

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