PROC. INTERNAT. CONF. SCI. ENGIN.
Volume 3, April 2020 | Pages: 35-37

ISSN 2597-5250
E-ISSN 2598-232X

Implementation of Wafers Feed on Based Palm Kernel Cake for Adult Ongole Crossbreed Cattle

Yana Sukaryana, Zairiful, Yadi Priabudiman, Imelda Panjaitan
Departement of Animal Husbandry, Politeknik Negeri Lampung, Jl,Soekarno-Hatta No.10, Bandar Lampung.
Email: y_sukaryana@polinela.ac.id

Abstract. Wafer is one of the complete feed form processed feed which is formed in such a way with special tools, made from concentrate and forage. The purpose of this research was to implementation of wafer feed on based palm kernel cake for adult ongole crossbreed cattle. The cattle used was ongole crossbreed cattle, cow males used as much as 12 tails with approximately 2 years of age and average body weight 200 ± 25 kg. Wafer feed of based palm kernel cake treatment in 4 formulas, namely: Formula 1, Formula 2, Formula 3, and Formula 4. Feed was given ad libitum controlled and drinking water was given ad libitum. The observation variables were done against: feed consumption, weight gain, and feed conversion. The results showed that: Wafer feed of based palm kernel cake treatment has no significant (P > 0.05) influence against feed consumption in adult ongole crossbreed cattle, daily weight increase in mature ongole crossbreed cattle with wafer feed; Formula 1 of 0.63 kg/tail/day, Formula 2 is 0.60 kg/tail/day, Formula 3 is 0.73 kg/tail/day, and Formula 4 is 0.80 kg/tail/day, the best feed conversion in the range of feed Formula 4 ie (4.13), feed Formula 3 ie (4.53), feed Formula 1 ie (5.13), and feed Formula 2 ie (5.43).

Keywords: ongole crossbreed, palm kernel cake, wafer feed.

INTRODUCTION

Feed was an important component in livestock maintenance. Feed cost was the biggest cost of the total cost of production is reaching 70-80%. Feed limitations cause the capacity of livestock in a declining area and cause production and reproductive disorders. Solution of the problem was to power agricultural waste/industry in the business of livestock. This effort was not an exaggeration considering that Indonesia is an agrarian country. To utilize the waste of agriculture/industry should be known precisely the value of use and usability and know the appropriate technology to manage it.

Wafer was one of the effective feed processing technology and was expected to keep feed availability continuity, especially in the dry season (Retnani, 2009). The results of the research of Jannah et al (2013) stated, the complete wafer ration products are well received, with an interest rate of 57%. Wafer feed was a complete feed, which is a product of animal feed products consisting of feed sources of fiber that is forage and or agricultural waste, with a composition tailored based on the needs of livestock nutrients and in the manufacturing process is experiencing compaction. Palm kernel cake that was quite abundant in Sumatra, especially in Lampung province is still not optimally utilized to be processed as wafer feed (Sukaryana, 2013). Therefore, the development of wafer-based feed processing technology has a very good prospect in the field of livestock, especially beef cattle and the extent of its implementation in adult ongole crossbreed.

MATERIALS AND METHODS

Research conducted for 90 days using Completely Randomized Design (CRD) with the initial weight of each experiment used as covariate (Nuhuyanan, 2010). The cattle used are Ongole crossbreed males used as much as 12 tails with approximately 2 years of age and average body weight 200 ± 25 kg. Wafer feed on based palm kernel cake treatment in 4 formulas, namely: Formula 1, Formula 2, Formula 3, and Formula 4. Feed was given ad libitum controlled and drinking water was given ad libitum. The observation variables are done against feed consumption, weight gain, and feed conversion.

Table 1. Wafer feed formula complete feed based on palm kernel cake.

Feedstuff	**Formula 1**	**Formula 2**	**Formula 3**	**Formula 4**
	..... %			
Pennisetum purpureum	50	40	30	20
Palm kernel cake	20	30	40	50
Corn flour	15	15	15	15
Rice bran	5	5	5	5
Tapioca waste	5	5	5	5
Molasses	5	5	5	5
Premix	0,5	0,5	0,5	0,5

The Data obtained from the observations were carried out and analysis was conducted using covariance analysis (Steel and Torrie, 2009). If data analysis has an influence continued with Test Duncan. Wafer-feed based complete feed Formula that was implemented in the adult Ongole crossbreed during the study can be seen in table 1 while the results of proximate analysis of food substances based on calculation (% dry materials) can be seen in table 2.

Table 2. The content of nutrition complete feed wafers of analysis results.

Nutrition	Formula 1	Formula 2	Formula 3	Formula 4
	……. % ……			
Dry matter	20,46	10,28	12,20	9,42
Moisture	3,86	3,31	7,94	7,74
Crude protein	9,89	9,80	14,45	17,20
Crude fiber	44,90	40,40	32,85	34,83
Crude fat	0,79	0,74	1,28	1,06
Ash	40,56	45,75	43,49	39,17

RESULTS AND DISCUSSION

Feed consumption

The wafer consumption of the complete feed-based palm kernel cake in adult Ongole crossbreed was the ability to spend a certain amount of feed given by ad libitum. The consumption rate of the wafer complete feed-based palm kernel meal in adult Ongole crossbreed can be seen in table 3.

Table 3. The wafer consumption rate of complete feed-based palm kernel cake in adult Ongole crossbreed.

Dry matter Consumptions	Formula 1	Formula 2	Formula 3	Formula 4	Total
	..... kg/tail/day.....				
Replicate 1	3,1	3,1	3,2	3,3	12,7
Replicate 2	3,3	3,3	3,4	3,3	13,3
Replicate 3	3,3	3,4	3,3	3,3	13,3
Total	9,7	9,8	9,9	9,9	
Average	3,23	3,26	3,30	3,30	

The rate of consumption wafer complete feed-based palm kernel cake in adult Ongole crossbreed ranges between 3.23 – 3.20 kg/tail/day. Based on the results of the printing analysis obtained that the administration of complete wafer based on palm kernel cake has a not real influence ($P > 0.05$) against the consumption of feed (in dry materials) in adult Ongole crossbreed. Unreal results in feed consumption can be influenced many factors either from the condition of the cow itself as well as from other factors such as feed and environment. The age of cattle that mature can affect feed consumption, because the ability of rumen is quite good digest the feed used, namely palm kernel cake that has a very high crude fiber. Poor cattle health conditions can also be possible factors affecting the amount of consumption. The unreal results obtained from the analysis in accordance with the results of the research (Nurhaita, 2013) which research with the provision of palm oil is 50% also has no real effect ($P > 0.05$). Feed consumption is also influenced by internal livestock factors such as feed palatability and digestibility level towards the feed consumed, the higher the level of feed digestibility will increase feed consumption (Masyurin, 2013), so the amount of nutrients used for production will increase. It can be seen from nutrition content in almost identical feed.

Daily Weight Increase

Daily weight increase was the result of a reduction in the amount of final weighing weight reduced by the initial weight and divided by the length of maintenance carried out for 90 days. Daily weight increase rate during treatment can be seen in table 4.

Table 4. Daily weight gain rate in adult Ongole crossbreed.

Daily weight gain rate	Formula 1	Formula 2	Formula 3	Formula 4	Total
	..... kg/tail/day				
Replicate 1	0,7	0,6	0,7	0,8	2,8
Replicate 2	0,6	0,6	0,7	0,8	2,7
Replicate 3	0,6	0,6	0,8	0,8	2,6
Total	1,9	1,8	2,2	2,4	
Average	$0,63^{c}$	$0,60^{c}$	$0,73^{b}$	$0,80^{a}$	

Description: Different superscripts on the same line indicate a high significant difference ($P < 0.05$).

Daily weight increase in the adult Ongole crossbreed fed with Formula 1 wafer 0.63 kg/tail/day, Formula 2 of 0.60 kg/tail/day, Formula 3 of 0.73 kg/tail/day, and Formula 4 of 0.80 kg/tail/day. The effects of feeding wafer complete feed based on palm kernel cake to increase daily weight can be known by the analysis of various prints. Based on the results of the prints analysis, the provision of feed formulation 4 is very real ($P < 0.05$) compared to all treatments, formulation 3 gives a very noticeable effect ($P. < 0.05$) compared to formulation 2 and formulation 1, while formulation 2 and formulation 1 give a unreal effect ($P > 0.05$). The increase in cattle body weight depends on the feed and its ability to utilize the feed (Masyurin, 2013). These conditions can be caused by many factors, among others; Age, gender, environmental and genetic, where the initial body weight of the feedlot phase is associated with adult weight. Another very influential factor is the

nutrient content of feed. The crude protein content in formulations 4 is the highest compared to other formulas, resulting in the highest increase in body weight.

Feed conversion

Comparison of the amount of dry material consumed with the increase of daily weight. The feed conversion rate during treatment can be seen in table 5.

Table 5. Feed conversion rate in adult Ongole crossbreed.

Feed conversion rate	Formula 1	Formula 2	Formula 3	Formula 4	Total
Replicate 1	4,4	5,2	4,6	4,1	18,3
Replicate 2	5,5	5,5	4,9	4,1	20,0
Replicate 3	5,5	5,7	4,1	4,1	19,4
Total	15,4	16,3	13,6	12,4	
Average	5,13^{c}	5,43^{d}	4,53^{b}	4,13^{a}	

Description: Different superscripts on the same line indicate a high significant difference (P < 0.05).

The conversion rate of feed on adult Ongole crossbreed cattle was in the Formula 1 treatment of 5.13, Formula 2 of 5.43, Formula 3 of 5.43, and Formula 1 of 4.13. Wafer feed effect of complete feed based on palm kernel cake parcel of feed conversion can be known by the analysis of various prints. Based on the results of the prints analysis, the treatment of 4 different feed formulas is very real (P < 0.05) against the conversion of feed. The best feed in the range of feed Formula 4, namely (4.13), 3 feed formula namely (4.53), feed Formula 1 ie (5.13), and feed Formula 2 (5.43). The feed conversion of the results of this research is better compared to the research results of (Syamsu, 2003), stating that the conversion of feed to a good cow was 8.56-13,29. Feed Conversion was influenced by nutritional willingness in rations and livestock health. Conversion of feed was strongly influenced by the condition of livestock, the digestibility of livestock, gender, nationality, quality and quantity of feed, also environmental factors. The increase in the value of digestibility and efficiency of nutrient utilization in the metabolic process in the body tissues are influenced by the better quality of feed consumed by livestock, this is followed by the increase of high body weight then the conversion value is increasingly lower and the more efficient The feed used (Pertiwi, 2013).

CONCLUSION

The results showed that: Administration of wafer complete feed based on palm kernel cake has not noticeable effect (P > 0.05) against feed consumption (in dry material) in adult Ongole crossbreed, the increase in the daily weight of the adult Ongole crossbreed fed with a Formula 1 wafer of 0.63 kg/tail/day, Formula 2 of 0.60 kg/tail/day, Formula 3 of 0.73 kg/tail/day, and Formula 4 of 0.80 kg/tail/day, and the best feed conversion in the range of feed Formula 4 ie (4.13), feed Formula 3 ie (4.53), feed Formula 1 ie (5.13), and feed Formula 2 ie (5.43).

ACKNOWLEDGEMENTS

Thanks are conveyed to the Ministry of Research, Technology and Higher Education who have funded this research with the topic of Development of Wafer Feeding Technology for Palm kernel cake in Beef Cattle Fattening in the 2019 Higher Education Applied Research Scheme.

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