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THE EFFECT OF PALM OIL LEAVES AND ITS CONCENTRATE BASED ON LOCAL SOURCES TO INCREASE MALE WEIGHT OF ACEH COW IN ACEH TAMIANG DISTRICT, INDONESIA

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ABSTRACT: *This study was aimed at providing information to farmers about the benefits of palm oil leaf waste and concentrates for male weight gain in Aceh cow, the use of the percentage of palm oil leaves and concentrates to increase male weight of Aceh cow, and to provide the information about the relationship between palm oil leaves and concentrates for male weight gain in Aceh cow. The data were analyzed by using analysis of variance (ANOVA) to determine the effect of treatment on observed parameters. This study used a Completely Randomized Design (CRD) consisting of 3 treatments from feed concentrate and 3 replicates. The result showed that that the supply of oil palm leaves and concentrates had an effect on body weight gain, feed consumption, feed conversion and ration efficiency. Based on the average increase in male body weight of Aceh cows is highest in treatment C 0.53 Kg, with the consumption of dry ingredients ration 3.29 Kg, the average maximum ration conversion is in treatment A (9.41 Kg), the average maximum ration efficiency is in the treatment B (0.18%) so that it can be used as information for fattening feed in male Aceh cows because it can increase body weight gain.*

KEYWORDS: Palm oil; Aceh cow; treatment; animal feed; palm oil leaves; male weight

INTRODUCTION

The population that continues to grow has resulted in increasing demand for food needs. The availability of productive land seems to indicate a decline. Livestock make an important contribution to providing food substances that are good for humans. At this time the grain is quite widely used for animal feed. This situation is an unhealthy competition between human and livestock needs. To support livestock production, efforts must be made to find alternative forage based on local resources that are easily obtained such as palm oil leaves. The use of palm oil leaves is still very limited to be used by farmers so that the leaves of oil palm are left around oil palm plantations so that it is still very easy to find. Palm oil leaves are one of the forages favored by cow, the leaves are produced from harvest shoots during harvesting fresh fruit bunches (Sitompul, 2003). Palm oil leaves can be given fresh to cow, but if given more than 20%, it needs initial management to increase their biological value (Winugroho and Maryati, 1999). To increase its biological value, it is necessary to add feed concentrates based on local resources which consist of tofu pulp and rice bran.

Rice bran is a waste of rice processing into rice and its quality varies depending on rice varieties. Rice bran is a by-product of rice mills in producing rice. Rice bran is a part of rice husk at the time of the rice bleaching process. Rice bran is used as animal feed, because it has a high nutrient content, the price is relatively cheap, easy to obtain, and its use does not compete with humans.According to (Schalbroeck, 2001), rice bran is a feed ingredient that has been

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widely used by some farmers in Indonesia. Ampas tofu is solid waste from soybean pulp which is processed and not used anymore in the process of making tofu. Tofu waste contains high protein, but has a weakness in the form of high crude fiber content, high fat, and easy to grow mushrooms.

Based on the above problems, the researchers wanted to examine the effect of giving palm oil leaves and the addition of local resource-based concentrates to male cow's weight gain.

REVIEW OF LITERATURE

Aceh Cow

Aceh cow is the cow that spread in Aceh Province, The population of Aceh cow in Aceh is estimated to be around 590,315 with a population growth of 4.4%. The existence of Aceh cow is spread in 21 districts / cities in Aceh Province. Aceh cow population in East Aceh is 100,992, North Aceh 97,394, Big Aceh 96,789, Bireun 69,692, Pidie 61,738 (Diskeswannak Aceh, 2011). Aceh cow are the cow that live and breed in the province of Aceh and are generally owned by rural farmers since long ago.

Figure 1: Aceh Cow

This cow is a type of small-sized beef cow and has a significant contribution to fulfill the needs of meat in the region (Diskeswannak, 2011). Aceh cow is one of the four local Indonesian cow (Aceh, Coastal, Madura and Bali). Sumba-ongole and Java-Ongole (PO) cows are also considered as local Indonesian cow (Martojo, 2003; Dahlanuddin et al., 2003). Native animals have been shown to be able to adapt to the local environment including food, water availability,

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climate and disease. Thus, these livestock are the most suitable to be maintained and developed in Indonesia, even though production is lower than imported livestock (Noor, 2004).

Aceh cow have a small, dense and compact body shape with shoulders on humped males, while females do not hump but their shoulders are unevenly slightly prominent compared to female Bali cow. Between one region and another in Aceh province there were slight differences in body conformation, horns and feather color. This may be due to the origin of different crosses from India cow (Hisar, Bengal) and so on. In coastal areas and along the coast of *Aceh Besar*, Pidie, North Aceh and East Aceh, so the West and South coast will be found in Aceh cow with diverse body shapes and generally longer horns with red/dark brown feathers on the hips and cow in the Pidie area having a slightly small physical form may be due to inbeeding for a long time (Martha, 2005).

Leaves of Palm Oil as the Cow Feed

Palm leaves are obtained from pruning oil palm plants. From every 1 (one) palm oil plantation with a 9 x 9 m spacing it is estimated that there are 136 oil palm stems. If each oil palm frond produces 0.5 kg of feed and each tree produces 22 leaf midribs per year, it means that every year oil palm plantations can produce 1.52 tons/ha/year.

Figure 2. Palm oil leaves

The use of palm oil leaves in the week has been tried in broiler and dairy cows. In broiler and dairy cows, palm oil leaves can be given 30-40 percent of the food. The use of palm oil leaves must be discarded first because it will have a less safe effect on livestock. Palm oil leaves can be given to livestock in fresh form, but if the use is above 20%, treatment is needed to increase their biological value (WINUGROHO and MARYATI, 1999).

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Concentrate Feed

Concentrate is a feed ingredient that is used in conjunction with other feed ingredients to increase nutritional harmony of the whole food and is intended to be put together and mixed as a complementary feed (Hartadi et al., 1991). Concentrate or reinforcing feed can be prepared from grains and waste from industrial foodstuffs such as milled corn, soy flour, menir, bran, rice bran, coconut cake, drops and tubers. The role of concentrate is to increase the low nutrient value in order to meet the normal needs of animals to grow and develop in a healthy manner (Akoso, 1996). Addition of concentrates in livestock rations is an effort to meet the needs of food substances, so that high production will be obtained. In addition, the use of concentrates can increase the digestibility of ration dry matter, body weight gain and efficient use of rations (Holcomb et. Al. 1984).

Feeding high-quality concentrates will accelerate the growth of livestock, so that the expected weight can be achieved in a short time. However, giving large quantities of concentrated feed may not be good because it can cause the pH in the rumen to decrease. This is because the giving of concentrate will suppress the buffer work in the rumen because mastication decreases as a result of decreased salivary production and increases the production of volatile fattyacid/VFA (Arora, 1995). The decrease in pH can affect the growth and microbial activity in the rumen, which plays a role in the digestive process of feed and will subsequently result in decreased digestibility of feed and livestock productivity. The normal degree of rumen acidity (pH) ranges from 6.0-7.0. In this pH range, maximal rumen microbial growth so that physiological activity increases, especially those associated with rumen fermentation (Putra and Puger, 1995).

Rice Bran as the Feed of Cow

Rice bran is a feed ingredient that has been widely used by some farmers in Indonesia. Some feed ingredients derived from agro-industrial waste. Bran has great potential as a feed ingredient for energy sources for livestock (Scott et al., 1982). The main weakness of rice bran is its crude fiber content which is quite high, which is 13.0% and the presence of phytic compounds that can bind minerals and proteins so that it is difficult to be utilized by digestive enzymes. This is what is the limiting factor for its use in the preparation of rations. However, judging from the protein content which ranges from 12-13.5%, these feed ingredients are very calculated in the preparation of poultry rations. Rice bran contains thermetabolis energy ranging from 1640 - 1890 kcal/kg. Another weakness in rice bran is its low amino acid content, as well as vitamins and minerals (Rasyaf, 2004).

Figure 3. Rice bran as animal feed

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Provision of forage feed as a single feed, not sufficient nutritional needs to achieve optimal production, so that concentrates need to be added. One of the concentrate ingredients is rice bran. Rice bran is easily available and guaranteed, and has a fairly high nutrient content, namely crude protein (PK) of 13.80% and extract material without nitrogen (BETN) 53.30%. The proportion of bran use in livestock rations depends on the purpose of livestock raising. In general, it can be recommended that bran for ruminants is 30-40% of the dry ingredients consumed. According to Sunarso, (1980) that the administration of bran as much as 30% is better than giving bran as much as 45%. According to the National Research Council (1994) rice bran contains metabolic energy of 2980 kcal / kg, crude protein 12.9%, fat 13%, crude fiber 11.4%, Ca 0.07%, P available 0.22%, Mg 0.95% and water content 9%.

Tofu Dregs as the Cow Feed

Tofu is a food that contains a lot of vegetable protein that is much in demand by consumers. Another effect of increasing tofu production is surplus tofu or leftovers from tofu making which has not been widely used and is considered to have less economic value. Further studies in tofu dregs are still useful as animal feed which contains a lot of protein. At present there are not many farmers who use tofu dregs as additional feed for their livestock other than concentrate. The growth of livestock in tofu dregs is faster than those not given (Titis, 2009).

Figure 4. Tofu waste as a source of animal feed protein

Tofu waste which is tofu industrial waste has advantages, namely a fairly high protein content (Masturi et al. 1992). But tofu has a weakness as a feed ingredient, namely the content of crude fiber and high water. The high crude fiber content makes it difficult for the feed ingredients to be digested and the high water content can cause the storage capacity to be shorter (Masturi et al., 1992 and Mahfudz et al., 2000). One way to reduce the crude fiber content is processed by

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fermentation. At present there are not many farmers who use tofu dregs as additional feed for their livestock other than concentrate.

Table 1. Composition of Tofu Dregs

Nutrition	Tofu	
	Wet (%)	Kering (%)
Dry Material	14,69	88,35
Crude protein	2,91	23,39
Fiber. Rude	3,76	19,44
Crude fat	1,39	9,96
Ash	0,58	4,58
BETN	6,05	30,48

Influence of Feed on Body Weight Increase

In general, growth is expressed by measuring body weight gain which can easily be done by repeated weighing every day, week or other time unit (Tillman et al., 1989). Additions in the form and weight of building tissues such as tendons, bones, brain, and all other body tissues and body organs are said to be pure growth. From a chemical point of view, pure growth is an addition to the amount of protein and mineral substances that are buried in the body. While the addition of weight due to accumulation of fat or water is not pure growth (Anggorodi, 1984).

Growth can be defined as increasing the size of bones, muscles, internal organs and other parts of the body (Ensminger, 1968). Body weight gain and growth are closely related to metabolism, which occurs in the process of catabolism and anabolism. Catabolism can be defined as the energy needed to break down food into small components and can be absorbed by body cells, while anabolism is the ability of body cells to convert food energy into productive energy which is useful for growth, energy, reproduction, among others and increase body weight (Maynard and Loosly, 1979). Growth occurs at least up to the adult sex level and is part of the reproductive process which includes differentiation of organs, changes in body size and proportion (Hammond et al., 1971). Increasing the age of an animal will cause an increase in body size followed by weight gain, due to accumulation of fat in the body of the animal (Bundy and Diggins, 1968).

Growth is not the same as development, growth is an increase in animal body weight to adulthood, while development is a change in body function so that it can function fully. For obvious developments are related to changes in the size and function of various parts of the body since the embryo becomes mature, but both are correlation (Sugeng, 1992). The speed of growth of livestock is not the same at each age stage, body weight is nearing maximum after puberty and begins to decline after adult animals (Campbell and Lasley, 1973). Each species has limited and normally achieved growth at a certain age (Usri and Dath, 1978).

Body weight gain or growth varies according to species, even in one animal species there will be variations in growth and weight gain. In addition to genetic factors, growth and weight gain are influenced by factors that play a direct role in the metabolic process. The most important internal factors are hormones, enzymes, and nerves (Swenson, 1970). Cow growth is

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influenced by several factors, namely genetic (genetic) and environment. Genetic influences further limit the possibility of growth and the size of the body that can be achieved, while environmental factors such as feeding, prevention and eradication of disease and governance will determine the level of growth in achieving maturity. Cow as well as other living things experience continuous growth, starting from the time they are still in the womb to adulthood (Sugeng, 1987). Growth is largely determined by the quantity and quality of rations given, in addition to genetic factors, so that livestock can grow well and produce results optimally, livestock must get adequate amounts of nutritious feed. The amount of feed given to daily livestock must be more than what is needed for basic living, so that livestock do not have difficulty producing (Djannah, 1985). Body weight gain occurs as a result of the ability of livestock to change feed ingredients that are eaten into meat and body fat, after the need for basic life is fulfilled (Maynard et al., 1979).

OBJECTIVES AND BENEFITS OF RESEARCH

The Objectives of the Research

The goal that the researchers want to achieve from the research that is done is

1. To find out the effect of palm oil leaves and local resource-based concentrates on male Aceh cow weight gain.
2. To determine the effect of the percentage of palm oil leaves and concentrate based on local resources on male weight gain in Aceh cow.
3. To find out the relationship between palm oil leaves and local resource-based concentrates on male Aceh cow weight gain.

The Aim of the Research

The benefits of this study include.

1. Providing information to farmers about the benefits of palm oil leaf waste and concentrates for male weight gain in Aceh cow.
2. Provide information about the use of the percentage of palm oil leaves and concentrates to increase male weight of Aceh cow.
3. Provide information on the relationship between palm oil leaves and concentrates for male weight gain in Aceh cow.

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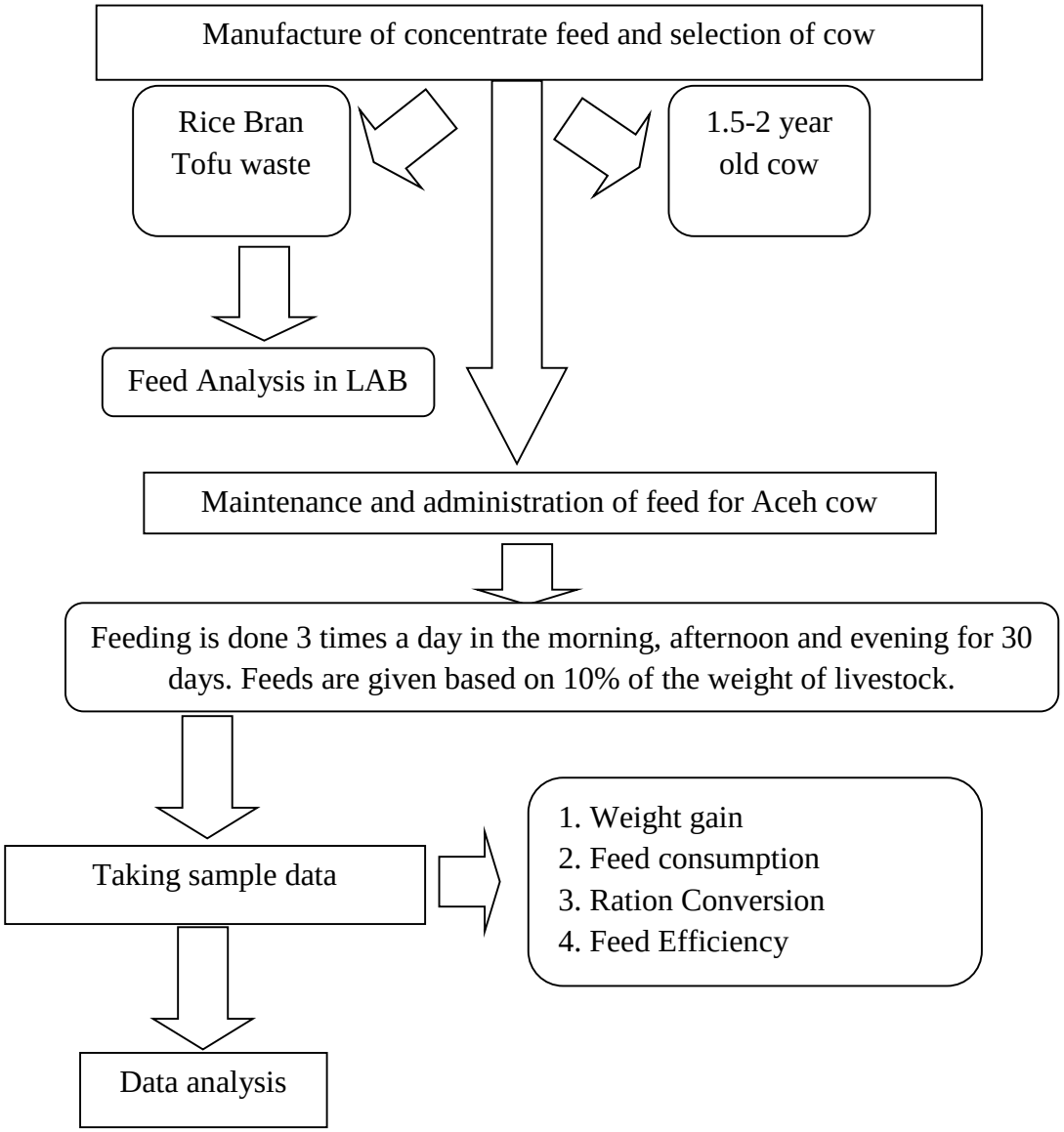
RESEARCH METHODOLOGY

Stages of Research



Research Locations

This research will be carried out in the community farms of Aceh Tamiang Regency from June to July 2018. Feed is proximate analyzed at the Laboratory of Animal Nutrition and Food Sciences Department of Animal Husbandry, Faculty of Agriculture, Syiah Kuala University.

Types and Research Design

This study used a Completely Randomized Design (CRD) consisting of 3 treatments from feed concentrate and 3 replicates. The treatment plan in the study is shown in the following table 2:

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Table 2. Treatment chart in the research

Test	Treatment		
	A	B	C
1	A1	B1	C1
2	A2	B2	C2
3	A3	B3	C3

a. The treatments for using forages and concentrates are as follows: 100% forage (as control) forage

b. Giving 10% concentrate: 80% forage and 10% for palm oil leaves

c. 20% concentrate: 60% forage and 20% for palm oil leaves

This study consisted of 9 male Aceh cows with each cow having the same sex, weight, and age, 2-2.5 years to obtain more accurate data. The mathematical model for RAL used in this study according to Steel and Torrie (1993) is:

$$\mathbf{Yij = \mu + \alpha i + \varepsilon ij}, \text{where:}$$

Yij : Observation value of the experimental unit with the i-feed treatment

μ : General midpoint

αi : Effect of feeding treatment

εij : Trial error or error for each observation

The Technique of Collecting Data

Cows that will be used as research material are selected first, the selection of cows aims to obtain uniformity between cows, be it gender, age, or cow body weight. The cows that will be seen increasing body weight are first exiled or transferred to individual cages so that the research process becomes easier in data collection, and also to reduce errors in data analysis. Furthermore, the cow is weighed to obtain the initial data on cow body weight, then the adaptation process is carried out first for seven days to prepare the cow to receive treatment from the feed material to be studied.

The cows that will be used as research material are the male Aceh cow originating from the people's farms. Feeding to cow is carried out twice a day, ie every morning and evening, at 08.00 WIB given concentrate and at 09.00 WIB given forage. In the afternoon the concentrate is given at 16.00 WIB and continued with the supply of forage at 17.00 WIB. Before feeding in the morning, the amount of feed given on the previous day was carried out and the remaining feed was forage and concentrate every day, then the consumption of dry matter (BK) was calculated.

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Weighing cow body weight using Protional Scales brand cow scales and conducted every two weeks. Data on cow body weight were obtained by looking at the difference between the final weight and the initial weight divided by maintenance time, then averaging per day / tail to obtain the basic data of the body weight of the cows.

Data analysis

Data from the results of this study were analyzed by using analysis of variance (ANOVA) to determine the effect of treatment on observed parameters. If the ANOVA analysis shows that the results are significantly different, then it is followed by the Duncan Multiple Range Test (DMRT) test (Steel and Torrie, 1993).

DISCUSSION

Weight Gain

Body weight gain is the ability of livestock to change the feed consumed for the formation of meat and fat after basic life needs are met. The weight of the livestock body can be calculated in certain units either by using scales or measurements of certain body sizes, so that the exact coefficient number is obtained. The average weight gain of male Aceh cow fed with forage concentrate and palm oil leaves can be seen in Table 3.

Table 3. Average Increase in Body Weight of Male Aceh Cows Feeded by Forage and Leaf Concentration of Oil Palm (Kg / Tail / Day)

Test	Treatment		
	A	B	C
1	0.40	0.43	0.50
2	0.50	0.53	0.55
3	0.54	0.57	0.61
Yi	1.44	1.53	1.66
Average	0.48^{a}	0.51^{b}	$0,53^{b}$

Description: Different superscripts in the same column show significant differences (P<0,05).

Based on the average increase in male body weight of Aceh cow given forage concentrate and palm oil leaves in Table 3 shows significant differences (P<0,05) between treatment A with treatment B and C. The average daily body weight gain of maximum male Acehnese cows was found in treatment C (0.53 Kg), followed by treatment B (0.51 Kg) and treatment A (0.48 Kg).

Treatment of C with available protein ration tends to be better utilized to increase male body weight of Aceh cow. This is presumably because the administration of 20% of the concentrate 60% forage and 20% of the leaves of oil palm has good tolerance and is very supportive of rumen activity in degrading rations. This situation is seen by the increase in ration consumption resulting in increased body weight, because body weight gain is strongly influenced by the suitability, quality and quantity of rations consumed. Treatment B and treatment A body weight gain was not maximum as in treatment C. This was thought to be due to the low protein and

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energy content in the ration which caused the protein to not be fulfilled. The high and low body weight gain of livestock is also influenced by the size of ration consumption. This is in accordance with what expressed by Azwani (2005) that livestock that consume more feed, have higher growth compared to livestock that consume less feed. In addition, the decrease in cow body weight gain in treatment A is caused by the quality of forage nutrients is still low and the feed is still less balanced, as stated by Sabrani et al. (1980) that forages given to livestock generally have not been able to meet basic necessities and production because the quality of feed is low, so livestock must obtain additional feed to increase their production. Body weight gain in livestock is strongly influenced by good feed quality and additional feed available such as concentrate. The availability of feed ingredients that have sufficient nutritional value and are balanced and of good quality are the main factors to increase livestock production.

Ration Consumption

Ration consumption is the amount of feed ingredients eaten or consumed by livestock. There are several factors that influence feed consumption in cattle, namely: livestock factors, feed conditions, pH of fluid in the rumen caused by the influence of feed fermentation, and external factors such as temperature and air humidity (Sarwono and Hario, 2001). The average consumption of research ration can be seen in Table 4. The results of analysis of variance in ration consumption in dry ingredients

Table 4. Average Male Aceh Cow Ration Consumption in Dry Materials (Kg/Tail/Day).

Test	Treatment		
	A	B	C
1	4.60	4.46	4.28
2	3.81	3.82	3.21
3	3.01	2.76	2.38
Yi	11.42	11.04	9.87
Average	3.80^{b}	3.68^{b}	3.29^{a}

Description: Different superscripts in the same column show very real differences (P<0,01).

Based on the average consumption of dry ingredients male Aceh cattle ration in Table 4 shows Treatment A was very significantly different (P <0.01) with treatment B and C. Average consumption of dry matter ration A (3.80 Kg) was higher than ration B (3.68 Kg), C (3.29 Kg).

Tillman et al. (1989) stated that besides the palatability the proportion of ration constituent material is worth considering because it can affect palatability and the amount consumed by livestock. Furthermore Ensminger and Olentine (2002) explain that, ration consumption is influenced by the chemical composition in the ration. Foods that have good palatability will be consumed more by livestock and are an important factor in determining the level of consumption. Palatability can be predicted from several influencing factors such as odor, texture, temperature, appearance, and taste.

The average dry matter consumption of rations in treatment B (3.68 Kg) was not as high as treatment A (3.80 Kg) but this was inversely proportional to the increase in body weight, where in treatment B the body weight gain was higher than the increase in weight body at treatment

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A, even in treatment A the body weight gain was the lowest compared to other treatments. So it can be concluded that high ration consumption does not guarantee a high body weight gain, this is in accordance with the opinion of Azwani (2005), that not all livestock that consume more rations, have higher growth compared to livestock that consume little ration. Sumoprastowo (1980) added that the level of consumption and capacity in consuming livestock rations will differ depending on the type of feed and body weight of livestock, then the ration which is low in nutritional content will be consumed more than the ration containing enough energy. The conclusion is that feed consumption in treatment A (100% forage) has not been able to meet the needs of livestock and the quality of feed that is still not good so that the weight gain is also low.

Conversion of rations

Ration conversion is the ability of livestock to convert consumed food into growth and production. This is found by means of consumption of dry matter divided by daily body weight gain obtained during a certain time. The average ration conversion can be seen in Table 5. Results of analysis of variance of ration conversion.

Table 5. Average Conversion of Male Aceh Cattle Rations (Kg/Tail/Day).

Test	Treatment		
	A	B	C
1	10.05	5.70	5.15
2	9.70	5.30	4.95
3	8.50	5.10	4.75
Yi	28.25	16.10	14.85
Average	9.41[a]	5.36[b]	4,95[b]

Description: Different superscripts in the same column show very real differences (P<0,01).

Based on the conversion of male Aceh cattle rations in Table 5, the differences are very real (P<0,01) between treatment A and treatment B and C. The maximum ration conversion rate was found in treatment A (9.41 Kg), followed by treatment B (5,369 Kg), and treatment C (4.95 Kg).

In the treatment of conversion of ration A has the highest ration conversion compared to other treatments, if seen from the body weight increase the treatment of ration A (100% forage) has the lowest body weight gain. The conversion value in ration A means that to produce 1 Kg of body weight per day it takes 9.41 Kg of ration dry matter. So it can be concluded that the provision of 100% forage (treatment A) has not shown good feed conversion rates, so it can be said that treatment A conversion of rations tends to be not good because the food consumed is large but not effective in forming meat. This is presumably because the nutritional value of feed in the treatment of feed A is still low, as revealed by Soewardi (1974) the ability of livestock to convert feed into meat is highly dependent on the quality of the feed, especially the content of protein, energy and crude fiber.

The lowest ration conversion value is found in treatment C, and if seen from the consumption of ration treatment C also has a low ration consumption so that the body weight gain is not as high as body weight gain in treatment B. Treatment C of dry matter consumption of 3.29 Kg

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can increase accretion body weight 0.53 Kg. A good ration conversion rate where low ration consumption can increase high body weight gain with low ration conversion at ration C (4.95 Kg). This is suspected because the rations consumed in treatment C already meet the physiological needs of livestock with protein content and high energy, so the conversion of livestock rations is low. As revealed by Maynard and Loosly (1979) that the higher the nutritional value in the ration, the ration conversion will be lower so that the efficiency of ration use will be better. The amount of nutrients needed and the ability to consume rations for ruminants will greatly depend on the weight of the livestock concerned (Siregar, 1994).

The ration conversion value in treatment B (5.36 Kg). The results showed that ration conversion at treatment B was lower than treatment A, but body weight gain in treatment B was high from treatment A. It can be concluded that the availability of energy sources in treatment B was more optimal for microorganisms in rumen activity and could work optimally, so that it can increase body weight effectively.

Feed Efficiency

The ration efficiency is the ratio between body weight gain produced with the amount of ration consumed. This can be seen by the daily body weight gain obtained divided by the consumption of ration dry matter. The average ration efficiency can be seen in Table 6. The results of analysis of variance in ration efficiency

Table 6. Average Efficiency of Male Aceh Cow Rations (Percent/Tail/ Day).

Test	Treatment		
	A	B	C
1	0.11	0.17	0.15
2	0.12	0.18	0.17
3	0.11	0.20	0.18
Yi	0.34	0.55	0.50
Average	0.11^{a}	0.18^{b}	0.16^{b}

Description: Different superscripts in the same column show very real differences (P<0,01).

Based on the efficiency of the male Aceh cattle ration in Table 6, it shows a very significant difference (P<0,01) between treatment A with treatment B and C. The average maximum ration efficiency was found in treatment B (0.18%), followed by treatment C (0.16%), treatment A (0.11%).

The lowest ration efficiency value is found in the treatment of A ration seen from the lowest body weight gain. This is presumably because the quality of feed given to treatment A is still not good and does not meet the needs of livestock. In accordance with what was stated by Tilman et al. (1989) that feed quality is one of the factors that influence the efficiency of feed use, the lower the nutritional value in feed, the lower the efficiency of feed use. The treatment of feed C (0.16%), B (0.18%) has a value ration efficiency is better than treatment of ration A (0.11%), this is thought to be ration in treatment C, B, which has fulfilled the livestock needs physiologically because of the high protein and energy content. This statement is in accordance with the opinion of Efendi (1993) which states that the energy and protein content in the ration is closely related to the efficiency of ration use. The higher the energy and protein content in

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the ration the higher the efficiency of its use. Livestock will consume rations efficiently if the energy and protein content in the ration is high.

CONCLUSION

The results of this study concluded that the supply of oil palm leaves and concentrates had an effect on body weight gain, feed consumption, feed conversion and ration efficiency. Based on the average increase in male body weight of Acehnese cows is highest in treatment C 0.53 Kg, with the consumption of dry ingredients ration 3.29 Kg, the average maximum ration conversion is in treatment A (9.41 Kg), the average maximum ration efficiency is in the treatment B (0.18%) so that it can be used as information for fattening feed in male Aceh cows because it can increase body weight gain.

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