Ongole Crossbreed Performance Given Silage of Cattle Rumen Contens as a Feed Substitute for Grass

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Abstract

The waste from the slaughterhouse is usually removed in a certain place while it can be used to feed the cattle. The use of rumen content as one of the alternative feed help to farmer to provide the feed easily, conserve the environment and support the development program, particularly in the urban area. The research is aimed at identifying the effect of the cattle rumen content distribution as the subtitute for the grass on the performance of the beef cattle. 12 SimPO oxen aged 1.5 - 2 years were adopted in the research which lasted for 8 weeks (2 months) with the feeding of 3% of the weight based on the dry matter and the drink was given ad libitum. The treatment consisted of subtituting the cattle rument content silage for the grass. The treatment consisted of T0 = giving 100% grass, T1= giving 25% cattle rumen content silage and 75% grass, and T2 = giving 50% cattle rumen content silage and 50% green grass. The ratio of grass to concentrate was 20% : 80%. The variables of the study were the average daily gain and feed conversion. The result indicated that the treatment was not significantly related with the average daily gain and feed conversion. It can be concluded that the substitution in part of the grass with the rumen content silage up to 50% exerted no effect on the average daily gain and feed conversion.

Keywords: beef, cattle rument content, silage

Introduction

Until recently the proliferation of beef cattle had converged into one production, - the meat (Parakkasi, 1999). Feed plays important rule in the cattle's need of nutrition for growth to produce the meat maximally. The growth of the cattle was affected by several factors, namely the race, sex and quality and quantity of the feed. Tillman *et al.* (1998) argued that the cattle growth rate heavily depends on the

amount of the consumed feed eaten. The lack of the feed represents the obstacle in the development process.

The Indonesian season, which consists of rainy and dry season, was associated with the difference ways in providing the feed for the cattle. In the rainy season, the provision of the feed for the cattle is much easier, while it is difficult to find the leaves in the dry season if not they are expensive. When it is necessary for the breeder to buy the feed, they had the reduced income since they have to buy the feed.

One of the slaughterhouse waste which can be used as the cattle feed was the cattle rument content. The use of cattle rumen content from the slaughterhouse has been reported by Messermith (1973) who used the rument content as the matter for ration preparation up to 15% could yield the average daily gain, feed consumption, feed efficiency and conversion which was unsignificantly different with the control.

The waste from the slaughterhouse is usually disposed. It is expected that 24.5 kg rument content or 3.8 kg per cow was produced each day since it contains 15.5% dry matter (Witherow dan Lammers, 1976 cited in Utomo *et al*, 2007). Overall, 46,525,500 kg fresh rumen content was produced from all slaughterhouse in Indonesia. The Data on the population and the number of slaughterhouse in Indonesia was presented in Table 1.

The use of rumen content as an alternative feed to fulfill the feed requirement help the feed provision, the environment conservation, and support the development program, partcularly in the urban area. One of the ways to remove the bad odor, to prevent the decay (reservation) and the maintain the nutritive value is to make it into silage, that is fermetation with the main product is the lactid acid.

The aim of the research was to identify the effect of silage substitution of cow rumen content in the grass basal feed on the performance of beef oxen which were fatten in the fattening effort, consisting of daily weight increase and feed conversion. The research was closely related with the use of industrial waste from the slaughterhouse in order to gain the provitable and efficient outcome. In addition, it was related with the use of slaughterhouse waste for the alternative feed cattle replacing the green leaves without reducing the quality and production of the cattle fattening.

Table 1. Cattle Population and Slaughterhouse in Indonesia (,000 cow)

	2004	2005	2006	2007	2008
Population	10,504	10,569	10,875	11,515	12,257
Beef cuts	1,733	1,654	1,800	1,886	1,899

(Directorate General of Animal Husbandry, 2011)

Materials and Methods

Location and Time

The research was conducted from August 1st, 2011 to November 1st, 2011. The research took place in Giwangan Slaughterhouse in Yogyakarta and in the fattening farm in Jarum Village, Kayuloko, Sidoharjo district in Wonogiri Regency. The test on the feed nutrient content was conducted in the bio-chemistry laboratory of Gadjah Mada University.

Materials

The rumen content. The rument content from the cattle used in this research was obtained from Giwangan slaughterhouse in Yogyakarta. The green rumen content was selected since it was indicated that the cattle consumed the green feed.

The silage of cattle rument content. Before conducting the silage on the cattle rumen content, the research determined the chemical composition of the basic matter in conducting the silage, namely the cattle rument content, soft and molases using proximate analysis. The preparation consisted of 64.60% rumen, 35.40% soft, creating dry matter from the 35% silage, plus 8% molases from the silage raw amatter and inoculated by *Lactobacillus plantarum* 0.1 % from silage matter which was put in the black vacuum *polyethylene* (Utomo *et al.*, 2007). The fermentation took 21 days. The resulted silage was subjected to proximate analysis to identify the chemical composition of it.

Stall. The research used 12 individual stall. The size of each stall is 100 x 150 $cm^{2.}$ the base for the stall was cement which was then covered with rubber to prevent the cattle for being slipped. The wall was made of brick and the roof-tile was used for the ceiling.

Tabel 2. Nutrient Composition of Feed Materials Making Up The Ration (% DM)

	King Grass	Rumen content silage	Consentrate
Dry Matter (DM)	21.25	28.90	84.21
Crude Protein (CP)	8.81	12.73	4.41
Crude Fiber (CF)	22.60	27.16	25.53
Organic Matter (OM)	85.47	84.81	77.06
TDN	60.44	65.11	53.55
Ash	14.53	15.19	22.94

The result of Bio-chemistry Laboratory Analysis in Husbandry Faculty, Gadjah Mada University

Equipments. The equipment used in this research consisted of a set of stall equipment, *vacum cleaner,* black *polyethylene* bag, plastic rope, *Rudweight* cattle scale with the capacity of 1,250 kg with the sensitivity of 1 kg and Goat cattle feed scale with the capacity of 15 kg and the sensitivity of 50 gr and a set of laboratory equipment for analyzing the feed.

The ingredient of ration. The ingredients for preparing the ration consisted of king grass, rument content silage and nutrisi fit(R) concentrat. The nutrition composition was presented in Table 2.

Methods

The research lasted for 13 weeks. The first three weeks was used to prepare the silage of rument content, 1 week later was used to feed adaptation and next 8 weeks was used to examine the distribution of rument content silage. The consentrat feed was given twice a day at 8 in the morning and at 6 in the afternoon while the rument content silage was given in the noon - from 12 to 13 pm. The drinking water was given *ad libitum* while the research took place.

The Cattle Grouping

The population of the research consisted of 12 SimPO oxen. The weight of the cattle ranged from 350 to 400 kg. The cattle was assigned into three feed treatments.

The Pattern of Feeding

The control feeding consisted of the grass to concentrat : concentrate ratio of 20% : 80%. King grass was used in this treatment, while the concentrat was the same for all treatments- the product of nutrisi fit. The feeding pattern in the research consisted of three kinds of treatments:

P0 : control (no cattle rument content silage).

T1 : the cattle rument content silage was 25% and the grass 75%.

T2 : the cattle rumen content silage was 50% and grass 50%.

The silage of cattle rument content was used to subtitute the grass.The fattening treatment was conducted in 8 weeks (2 months) and previously the 2-week adaptation period was conducted to adapt the cattle to the physical environment and the feed. The feed distributed to the cattle was 3% of the weight based on the dry matter, while the drink was given ad libitum. The scaling was conducted once in a week to identify the daily average weight gain in a week, while the scalling of the feed and the remains was conducted every day during the research (8 weeks)

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Data Analysis

Oneway ANOVA using random design was adopted to analyze the average

daily gain and feed conversion. When the significant values were obtained, they were then subjected to *Duncan multiple range test*/DMRT (Christensen, 1996).

Results and Discussion

Average Daily Gain

The following table listed the average daily gain for each ox Table 3 also listed the result from the three treatments. The result of statistical analysis on the treatment of cattle rument content silage in the beef cattle was not significantly related with the average daily gain.

The average daily gain of T1, T2, and T3 were 0.92 ± 0.02, 0.97 ± 0.05, and 0.96 ± 0.03 kg/ox/day, respectively. There is not significantly different because nutrient composition of feed materials for all the treatment was not different to.The average daily gain resulted in this research was different with that of Yudhanto (2008) who conducted research on the Ongole cattle. The average daily gain for Nutrient composition of feed materials making up the ration and SimPO cattle were 0.58 and 1.05 kg/ox/day, respectively.

The average daily gain was also subjected to covarian analysis for identifying the effect of initial weight on the ADG. The covarian analysis on the initial average daily gain indicated that Fcount < Ftable, meaning that it was not *significant.* It is clear that the substitution of some green plants with cattle rument content silage exerted no significant effect on the average daily gain.

Types of feed, consumption and composition of chemical composition influenced the growth, protein consumption and energy which produced the more rapid pace of growth (Soeparno, 2005). It is clear that the factor affecting the growth and the development of the cattle included the feed, sex, hormon, age, environment and climate.

According to Tillman *et al*. (1998) the weight gain takes place when the consumed feed is beyond the requirement for living. If the main need is fulfilled, the excessive nutrition was then stored as the flesh and fat tissues (Cullison, 1970).

Table 3. Average Daily Gain (kg/ox/day)

	Treatment		
	T0	T1	T2
1	0.96	0.94	0.96
2	0.92	1.05	1.00
3	0.91	0.96	0.91
4	0.91	0.92	0.98
Average	0.92 ± 0.02	0.97 ± 0.05	0.96 ± 0.03

Table 4. Feed Conversion

	Treatments		
	P0	T1	T2
1	13.55	15.35	13.30
2	14.00	13.55	13.20
3	15.28	14.31	14.29
4	14.39	13.44	13.01
	14.30 ± 0.69	14.16 ± 1.46	13.45 ± 0.70

Feed Conversion

The data of daily average feed conversion per ox from the three treatments is presented in Table 4. The statistical analysis on the treatment of cattle rument content silage se among the beef cattle insignificantly affected the feed conversion. The average feed conversions of T1, T2, and T3 were 14.30 ± 0.69, 14.16 ± 1.46 and 13.45 ± 0.70, respectively. There was no difference in the dry matter consumption and average dily gain among the three treatments and thus, there was no difference in the feed conversion among the three treatments.

The resulted feed conversion in this research was slightly higher than that of Ngadiyono's (1995) studi on the PFH oxen with the ration of concentrat and king grass was (70 : 30), resulting the conversion value of 10.8 kg/ox/day and that of Suwignyo's (2003) research on ACC oxen with the fermented rice straw and concentrate with the resulted feed conversion of 9.6-11.4 kg/ox/day.

The lower value of feed conversion, according to Tillman *et al.* (1998) means the more efficient the consumption of the feed. According to Campbell dan Lasley (1985), the feed conversion was affected by the cattle's ability to digest the feed, the adequacy of the feed for maintaining the living requirement, the growth and other body function as well as the type of consumed feed. According to Pond *et al*. (2005) nutrient was directly related with the growth rate and the body composition during the development. The energy was used to fulfill the requirement for maintaining, protein development and fat deposition.

Conclusion

It can be concluded that the substitution in part of the grass with the rumen content silage up to 50% exerted no effect on the average daily gain and feed conversion.

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