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Kerjasama

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dan
Jurusan Nutrisi dan Makanan Ternak
Fakultas Peternakan, Universitas Brawijaya, Malang

PENGARUH BERBAGAI ARAS PEMBERIAN POLLARD TERHADAP KOMPOSISI TUBUH DOMBA LOKAL

Agung Purnomoadi, Mukh Arifin and Indrawati
Fakultas Peternakan, Universitas Diponegoro, Semarang

ABSTRAK

Sebuah penelitian yang ditujukan untuk mengetahui perubahan komposisi tubuh domba lokal akibat pemberian pollard sebagai sumber protein dalam ransum telah dilakukan dengan menggunakan 12 ekor domba lokal, umur 1 tahun dengan berat 23 kg. Penelitian ini dilaksanakan selama 10 minggu menggunakan Rancangan Acak Lengkap (RAL) dengan 3 aras pemberian pollard dan 4 ulangan, yaitu; kontrol (0%; P0), 25 (P25) dan 50% (P50) dari kebutuhan bakan kering (4% bobot badan). Selama penelitian berlangsung ternak diberi pakan basal berupa rumput gajah secara ad libitum. Pengukuran komposisi tubuh dilaksanakan dengan metode 'urea space' pada minggu ke 1 dan ke 10. Hasil penelitian menunjukkan bahwa pemberian pollard dalam pakan sebanyak 25 dan 50% konsumsi bahan kering memberikan peningkatan pada protein tubuh kosong maupun lemak tubuh kosong. Dapat disimpulkan bahwa pemberian pollard sebagai sumber protein dalam pakan sampai dengan 50% dapat meningkatkan komposisi tubuh domba lokal.

Kata kunci: *komposisi tubuh, domba lokal, pollard*

ABSTRACT

Research on the effect of pollard feeding as a source of protein on body composition was carried out using twelve indigenous rams aged one year old and weighed 23 kg. During 10 weeks experimental period, the animals were treated with three levels of pollard feeding, i.e., control (0%; P0), 25 (P25) and 50% (P50) of dry matter requirement, complied with Completely Randomized Design (CRD), while the Napier grass was fed *ad libitum*. The feed was adjusted to meet the dry matter requirement at 4% of liveweight. During the experimental periods, body composition was measured by 'urea space' method, at week 1 and 10. Results of the experiment indicated that feeding pollard as much as 25 and 50% of dry matter intake were followed by increasing both empty body protein and empty body fat. It was concluded that providing pollard as a protein source in the diet at 50% could be used to improve body composition of local sheep.

Keywords: *body composition, local sheep, pollard*

I. INTRODUCTION

Many studies showed that wheat starch might support a good environment of rumen for optimizing ruminal digestion that in turn improved feed utilization and animal production. Wheat starch supplementation increased daily gain, reduced feed conversion (Zinn, 1994), increased digestibility, propionate concentration and reducing Acetate-Propionate (A/P) (Zinn *et al.*, 1996), increased feed intake and ruminal microbes population (Kreikemeier *et al.*, 1990). Pollard, the wheat industrial by-products, may have a similar role for supporting animal productivity.

Productivity, practically is measured by body weight gain, and body composition varies with feeding regimes and age of animal (Pond *et al.*, 1995). Therefore, since the animal production aims to fulfil people's protein requirement, the study on body composition especially body protein after raising under pollard feeding should be carried out. This study was aimed to investigate the effect of pollard that contains high protein and energy on the change of body composition of animal. In this stage, the evaluation was conducted to the change of body protein and body fat.

II. MATERIALS AND METHODS

Twelve indigenous thin tailed rams, aged one year old and weighed 23 kg, were used in this experiment. During 10 weeks of experimental period, the animals were treated with three levels of pollard feeding, i.e., control (0%; P0), 25 (P25) and 50% (P50) of dry matter requirement, complied with Completely Randomized Design (CRD), while the Napier grass was fed *ad libitum*. The feed was adjusted to meet the dry matter requirement at 4% of liveweight. Napier grass was offered to animal after wilted at least 7 d, while water was offered *ad libitum*. Nutrient content of feedstuff used in this study is presented in Table 1.

Table 1. Nutrient content of feedstuff used in this study (%DM)

feedstuff	OM	CP	CFi	EE	NFE	GE, kJ/g
Napier grass	82.9	13.1	31.0	5.0	33.7	16.7
Pollurd	96.3	18.7	6.9	4.8	65.9	19.7

The sheep were kept in individual cages. Feed intake during experiment was determined by measuring the feed offered and refused. During the

feed using Napier grass was unable to maximize the productivity, although the protein content of Napier grass used in this experiment was high, i.e. 13.1%.

In the first week, the body protein (BP) was lying in the range of 2.39-2.70 kg or 12.8-13.1% of empty body weight, while the body fat (BF) was lying in the range of 3.94-4.38 kg or 21.1-21.3% of empty body weight. Although the determination of those BP and BF was done after animal received an experimental feeding for a week during preliminary period, it could be considered that the sheep's condition in the beginning of study was similar. After 10 weeks of experimental feeding regimes, the change of BP among the treatments were significantly found ($P<0.05$), being BP of P0 decreased 0.03 kg (equal to 0.03%), while P25 and P50 increased 0.50 kg (0.3%), and 0.75 kg (0.3% empty body weight), respectively. Similar to BP, the BF also changed significantly with the treatments ($P<0.05$), being P0 decreased 0.06 kg (0.1%) while P25 and P50 increased 0.74 kg (0.1%), and 1.08 kg (0.2%), respectively. The change in BP and BF were higher in sheep receiving higher pollard content in feed. These increase were correlated with the intake of feed protein (for BP) and feed energy (for BF). Within the pollard feeding regimes (P25 and P50), all of the parameters changing were not significant ($P>0.05$), although the tendency of changing was observed becoming high in higher content of pollard.

In comparison between the change of body protein and body fat, it was found that body fat was tend to be higher than that of body protein. The increasing BF in P25 and P50 was 1.48 and 1.44 times of the BP, respectively. These results showed that BF development was faster than that of BP, and linearly increased with increasing pollard in feeding. The similar phenomenon was also observed in percentage of BP or BF to the empty body weight. The changes in percentage of BP in P25 and P50 were similar, being 0.3% of empty body weight, and it was smaller than of BF in P25 (0.1%) and P50 (0.2%). This was disagreeing with those reported in many studies that the percentage of BP was relatively constant compared to BF (Pond *et al.*, 1995), although the range of those changing was still in their stated range. However, those changes in percentage of BP to empty body weight that was higher than that of BF might lead to a conclusion that pollard supplementation support the development of BP rather than BF, although quantitatively BF was increased higher than of BP.

Table 2. The average of body protein and body fat at week 1 and 10 of sheep raised under pollard feeding at different level substitution.

Parameters	Treatments					
	P0		P25		P50	
Dry Matter Intake, g/d	730[a]		895[b]		847[c]	
Liveweight gain, g/d	15[a]		69[b]		94[c]	
Body protein, kg (%)						
- week 1	2.39	(12.8)	2.70	(13.1)	2.44	(12.9)
- week 10	2.36	(12.8)	3.20	(13.4)	3.19	(13.2)
- change w 1-10	-0.03[a]	(-0.03)	0.50[b]	(0.3)	0.75[c]	(0.3)
Body fat, kg						
- week 1	3.94	(21.2)	4.38	(21.3)	3.98	(21.1)
- week 10	3.88	(21.1)	5.12	(21.4)	5.06	(21.3)
- change w 1-10	-0.06[a]	(0.1)	0.74[b]	(0.1)	1.08[b]	(0.2)
Feed Intake						
- Protein, g/d	88.8[a]		124.9[b]		131.4[b]	
- Energy, MJ/d	11.5[a]		15.0[b]		14.8[b]	

(%): percentage to empty body weight; [a,b]: different superscript at the same row indicates significance ($P<0.05$)

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