
**Local Rabbit Performance Offered Diet Containing Different
Level of Gamal Leaf (*Gliricidia sepium*) and Pineapple Skin
(*Ananas comosus L.Merr*)**

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ABSTRACT

This study aims to determine the performance of local rabbits given rations containing gamal leaves and pineapple skin with different levels. The study used Randomized Block Design (RAK) with five treatments and five blocks as replicates. The treatments were: diet without using gamal leaf and pineapple skin as control (R0), feed used 20% gamal leaf and 10% pineapple skin (R1), feed used 25% gamal leaf and 15% pineapple skin (R2), feed used 30 % gamal leaf and 20% pineapple skin (R3) and feed used 35% gamal leaf and 25% pineapple skin (R4). The variables observed in this study included: initial body weight, final body weight, feed consumption, body weight again and FCR. The results showed that Performance of rabbit offered diet R0 was not significantly different ($P > 0.05$) than R1, but compared to R2, R3 and R4 were significantly different ($P < 0.05$). It can be concluded that the use of 20% of gamal leaves and 10% of pineapple skin does not affected the productivity of local rabbits.

KEYWORDS: *gamal leaf, pineapple skin, local rabbit, performance*

INTRODUCTION

Expensive commercial feed is often becomes serious problem to farmers mainly small holding farm. Part of row matter is still import from overseas. This condition cause feed cost is increase, while capability of public to pay it is low, so this impact to the farmers. Nuriyasa *et.al* (2016) stated that feed quality is much affect to the productivity of rabbit. Research result of Nuriyasa *et.al* (2015) showed that rabbit performance feed fermented coffee skin was better than control and diet that used unfermented coffee skin. One of efforts to minimized diet cost is the utilization of gamal tree that grow fast, rich protein, so it is potential to use for rabbit basic feed. Abianto (2011) said that weakness of gamal as animal feed is antinutrition i.e. tannin alcoloid that be able to tight protein. According to Iriani (2015), the implication of the tannin is could be minimized with supplementation of protease i.e. bromelin enzyme of pineapple skin waste (*Ananas comosus L. Merr*). Setyawati (2013) said that the bromelin is protease enzyme that capable to hidrolized peptide compound in or polypeptide to be simple molecule.

Rabbit development in society was conducted since longtime ago, but it population farmere are still very low. From potential point of view, the rabbit is very potential to develop as source of quality meat and it can be prepared faster than cattle. It needs smaller capital and

area than ruminant. Schiere (1999) stated that rabbit farming development gave bigger chance to fulfil nutrition needs of society due to the rabbit has some plus including : (1) produce high quality meat, (2) could use agriculture and kitchen waste products as animal feed, (3) skin, feather, head, leg, tail, urine and faeces can be used to any needs. Nuriyasa (2012) said that the rabbit is one of alternative animal that has big potential for developing to fulfil need of animal protein of Indonesian society besides a source of farmers need. Reality at this time is that the rabbit development cannot develop accordingly with indication of rare farmers and animal population. Expensive price of commercial feed and low knowledge about feed quality of farmers were one of some problems that must be finished soon. The use of pineapple skin in diet based on gamal leaf can be expected as trigger for developing rabbit farming in Indonesia.

METHODOLOGY

Location and Legth of Research

The field research was conducted for 12 weeks at Dajan Peken Village, Tabanan District, Tabanan Regency (50m dpl). Laboratory analysis was conducted in laboratory of Nutritions of Faculty Of Animal Science Udayana University, and Science and Technology of Diet, IPB.

Pen and Animal

The research used 25 pens :70 cm length, 50 cm wide and 45 cm hight (Nuriyasa, 2014). The hight of pens floor was 70 cm. There was one rabbit in each pen, so that there were 25 rabbits used in the research.

Experimental Design

All of ingredient were analysed proximately before the research was began. The design of the research was Block Randomized Design with 5 treatments and 5 block. Each unit pen used one rabbit, so that there were 25 rabbits used in the research. Treatments were used in the research were diet without gamal leaf and pineapple skin as control (R0), diet with 20% gamal leaf and 10% pineapple skin (R1), diet with 25% gamal leaf and 15% pineapple skin (R2), diet with 30% gamal leaf and 20% pineapple skin (R3), and diet with 35% gamal leaf and 25% pineapple skin (R4). Composition and nutrient content of treatments were presented in Table 1 and Table 2.

Table 1. Composition of Ingredient

Composition (%)	Treatment				
	R0	R1	R2	R3	R4
Gamal leaf	0	20	25	30	35
Pineapple Skin	0	10	15	20	25
Coconut mill	7,8	5	4	2	1
Fish meals	20	15,8	10.5	9	11
Cassava flour	20	11.9	7	1	1
Soybeans flour	8	5	6	8	6
Tofu waste	15	15	14	12	7

Rice bran	1	1,15	8	4	1
Coconut oil	8	0	0	0	0
Molases	19	15	5	1	0
Mineral mix	0.5	0.5	0.5	0.5	0.5
Bone meal	0.65	0.65	0.5	0.5	0.5
pollen saw	0	0	4,5	12	12
Total	100	100	100	100	100

Table 2. Nutrient Content of Diet

Treatment	Nutrient Content*				
	ME (Kcal/kg)	CP(%)	Ca (%)	P (%)	CF (%)
R0	2797,12	16,92	0,92	0,49	9,79
R1	2827,95	16,00	0,93	0,50	11,36
R2	2807,0	15,95	0,74	0,42	17,79
R3	2838,08	16,12	0,70	0,41	20,07
R4	2809,34	16,12	0,75	0,44	20,71

*Calculation based on Standard of scott *et al.* (1982)

RESEARCH VARIABLES

Feed Consumption and Drinking Water. Feed consumption and drinking water were calculated each week where feed offered to the animals minus the rest.

Body Weight. The animals were weight every week to obtain weight gain per week. Before the animals were weight, they were fasted for 12 hrs.

Feed Conversion. Feed conversion ratio (FCR) was calculated with comperation between amount of feed consumption to weight gain during the research.

Data Analyses

Data that obtaned were analyzed with ANOVA, if there were significantly different among treatments ($P < 0.05$) the analyses would be contiuned to Duncan Multiple Range Test (Stell and Torrie, 1980).

RESULT AND DISCUSSION

The initial weight of the rabbits were not significantly different ($P > 0.05$) among treatments R0, R1, R2, R3 and R4 (Table 3). This showed that the animals used were homogen.

Treatment R4 produced the lowest final weight and weight gain compare to other treatments that statistically was significant different ($P < 0.05$) compare R3, R2, R1 and R0. The presentation of antinutrition in gamal leaf could disturb metabolism in the animals body and obstruct nutrient, so the nutrient that can be used to grow was less, therefore final body weight and weight gain were lower (Abrianto, 2011). According to Lowry (1990), the

weakness of gamal leaf basically is less palatable particularly on non ruminant. Low palatable affects diet consumption level.

Data in Table 4.3 showed that the higher the gamal leaf and pineapple skin in diet, the lower the diet consumption. Iriani (2015) stated that up to now antinutrition is still a problem particularly to non ruminant. High Condensed Tannin (CT) content is a weakness due to increasing of protein in its interaction causes decreasing of protein digestibility. Cannas (2008) stated that tannin is also could formed complex carbohydrate, polysaccharid, cellulose, mineral, bacteria cell membran, digestive enzyme and disturbing amino acid absorption in intestine. Iriani (2015) stated that the presentation of bromelin in pineapple skin be able to hydrolized part of the tannin in gamal leaf. Table 2 showed that the higher the utilization of gamal leaf, and pineapple skin in diet, the higher crude fiber of the diet. High crude fiber content causes digestibility of dry matter diet of rabbit is getting lower and affects to decreasing of feed consumption (Nuriyasa .,2015). Wainwright (2002) stated that cellulose is the biggest component to compose cell membrane of gamal leaf and pineapple skin for about 40-50% that is very difficult digested by digestive enzyme of rabbit. So that,it must be decomposed to be low molecule weight compound i.e. mono, di, and three sacharid. Bromelin in pineapple skin that has not maximum hydrolized could help dry matter digestibility of diet. Low feed consumption of treatment R4 caused total nutrient consumption decrease and the growth of the animals was lower.

Table 3. Local rabbit performance fed diet contain gamal leaf and different pineapple skin

Variable	Treatment					SEM ³⁾
	R0 ¹⁾	R1	R2	R3	R4	
Initial weight (g)	211,68 ^{a2)}	212,78 ^a	210,19 ^a	208,78 ^a	207,72 ^a	0,95
Final body weight (g)	1740,48 ^a	1689,6 ^a	1605,75 ^b	1561,6 ^b	1460,75 ^c	16,62
Feed consumption (g/h)	65,60 ^a	65,27 ^a	64,12 ^b	63,33 ^b	63,00 ^b	0,22
Weight gain (g/h)	18,20 ^a	17,58 ^a	16,61 ^b	16,11 ^b	14,92 ^c	0,56
FCR	3,60 ^a	3,71 ^a	3,85 ^a	3,93 ^a	4,22 ^a	0,12

1) R0: Diet without gamal leaf and pineapple skin

R1: Diet use 20% gamal leaf and 10% pineapple skin

R2: Diet use 25% gamal leaf and 15% pineapple skin

R3: Diet use 30% gamal leaf and 20% pineapple skin

R4: Diet use 35% gamal leaf and 25% pineapple skin

2) Value with the some letter showed non significant different ($P>0,05$) and viceversa

3) SEM : Standard Error of the Treatment Mean

Feed consumption on rabbit feed R0 was the highest = 65.60 g/day, but the animal fed R1 = 0.50% lower ($P>0,05$).the animal fed R2, R3 and R4 consumed 2.26%, 3.36% and 3.96% lower ($P<0,05$) than the R0. Decreasing of feed consumption on increasing level utilization of gamal leaf was due to the increasing the animal preference to gamal leaf was very low and the higher the use of gamal leaf and pineapple skin, the higher the diet crude fiber content as in Table 2.

Feed conversion was not affected significantly ($P>0,05$) by different level of gamal leaf and pineapple skin. Treatment R0 resulted feed conversion = 3.60,while R1, R2, R3 and R4 were

3.82; 3.75; 3.66 and 4.22 respectively. Feed conversion was not significant different among treatments due to higher body weight and higher feed consumption, and not by higher level of nutrient efficiently utilization.

CONCLUSION

From result of the research could be concluded that the utilization of gamal leaf up to 20% and 10% pineapple skin were non significant different effected to local rabbit productivity.

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