

The Effect of Using Different Level of Indigofera sp. Flour and Pennisetum purpurreum cv mott as Based Feed in Fat Tail Fat tail sheep Performance

¹Dian Susi Susanti, ²Siti Chuzaemi & Mashudi

¹Postgraduate program, Faculty of Animal Science, Brawijaya University, Malang, East Java, Indonesia

²Lecturer of Faculty of Animal Science, Brawijaya University, Malang, East Java, Indonesia

ABSTRACT : The purpose of this research was to investigate the effect of using different level of indigofera flour and pennisetum purpurreum cv mott as based feed in fat tail fat tail sheep performance. The dietary treatments were : T0 = Forage 40% + concentrate 60%, T1 = Forage 40% + concentrate 55% + Indigofera flour 5%, T2 = Forage 40% + concentrate 50% + Indigofera flour 10%, and T3 = Forage 40% + concentrate 15% + Indigofera flour 15%. The materials were 20 male fat tail fat tail sheeps. Method was used in this experiment was Completely Randomize Design with 4 treatments and 5 replications, if there were significant influence would be tested by Least Significance Different Tets Method. Results showed that using different level of Indigofera sp flour and Pennisetum purpurreum cv mott as based feed in male fat tail fat tail sheep on glucose, consumption, digestibility of feed there was no effect ($P > 0.05$). The best results were found in T2 : $155,86 \pm 3,93$ g/fat tail sheep/day (ADG), $36,38 \pm 4,9$ mg/dl (BUN) In conclusion research with the 10% Indigofera flour and pennisetum purpurreum cv mott as based feed give the best result in Performance of Fat Tail Fat tail sheep

KEYWORDS: Average Daily Gain(ADG), Consumption and Digestibility, Fat Tail Fat tail sheep, Indogofera Flour and Pennisetum purpurreum cv mott (Rumput Odot) , Blood Profil (Glucose and Blood Urea Nitrogen (BUN))

I. INTRODUCTION

The subsector of farming as an integral part of national development needs to be continuously improved. One of the farming commodities that is highly developed and has a high economic value is fat tail sheep. Fat tail sheep are one of the kinds of small ruminants that can play a significant role in meeting human needs for animal protein. The increase in fat tail sheep populations from 2020 to 2021 by 2.65% in East Java according to population calculations quoted by the [1] indicates that there is an increase in the demand for fat tail sheep supply. According to [2] fat tail fat tail sheep include local superior fat tail sheep producing meat that is resilient and potential for cultivation, so with quality green feed is expected to produce a high productivity and contribute to the nation's meat supply. Feeding is the most important factor in the farm business, so it requires proper management of ransom delivery. Indigofera [3] is one of the feeding substances that could potentially be used as an alternative feed for cheap sources of fiber and protein. Indigophera sp in agriculture is widely used as a green feed because of its high protein content, easy cultivation, high adaptability, and high biomass production. An alternative to the greenery of livestock feed that can be developed today is rumput odot (Pennisetum purpurreum cv. Mott). This grass has a fairly high productivity of up to 60 tons/ha/harves [4]. It is one of the kinds of superior grass that has a high productivity and nutrient content and has high palatability for ruminantia fat tail sheep and is also one of quality and preferred fat tail sheep feed greens. Based on the statement, it is necessary a study on effective feeding to test the production of fat fat tail sheep in order to the efficiency of production and economic efficiency.

II. MATERIALS AND METHOD

Location and time : This study was conducted in the Dharma Mulya Farm, Kediri, East Java from Mei to July 2023.

Materials : Materials used were 20 heads of Fat Tail Fat tail sheep, Pennisetum purpurreum cv. mott, Concentrate and Indigofera Flour

Method : This study used an in vitro gas production technique arranged in a Randomized Block Design (RBD) with the following treatments:

T0 = Pennisetum purpurreum cv. mott, 40% + concentrate 60%

T1 = Pennisetum purpurreum cv. mott, 40% + concentrate 55% + Indigofera flour 5%

T2 = Pennisetum purpurreum cv. mott 40% + concentrate 50% + Indigofera flour 10%

T3 = Pennisetum purpurreum cv. mott, 40% + concentrate 45% + Indigofera flour 15% if there were significant influence would be tested by Least Significance Different Test Method

Table 1. Feed Chemical Composition

Raw Materials	Feed Chemical Composition		
	DM(%)	OM (%)*	CP(%)*
Pennisetum purpurreum cv. mott	15,02	82,15	13,51
Indigofera sp Flour	89,22	93,83	21,20
Consentrate	93,93	92,78	10,15

% Percentage based on dry matter.

* Based on 100% of DM

Chemical analysis : Proximate analysis was carried out according to the procedure of AOAC [5] to determine DM, OM, CP. Blood Chemistry Analyzer tipe ICHEM-I UBIO 535 to deteremine Glucose and Blood Urea Nitrogem

Statistical analysis : Data obtained were analyzed by analysis of variance (ANOVA) and followed by Duncan's Multiple Range Test if the treatments gave a significant effect on the variables measured.

III. RESULT

Table 2. Consumption and Digestibility of fat tail sheep with Indigofera Flour and Pennisetum purpurreum cv. mott as Based feed

Treatments	T1	T2	T3	T4
CDM(g/head/day)	1041,64±9,38	1091,20±12,07	1047,37±18,1 4	1082,2±33,26
COM(g/head/day)	902,08±8,61	882,88±11,92	1047,37±18,1 4	1082,20±33,26
CCP(g/head/day)	38,43±0,14	38,35±0,44	37,68±0,53	36,95±0,92
DDM (%)	68,06 ± 1,93	68,95 ± 3,59	70,85 ± 1,43 ^a	64,95 ± 1,97
DOM (%)	62,37±8,61	62,26±11,92	71,25±18,14 ^a	65,27±1,78
DCP (%)	51,87±4,88	58,87±4,31	64,07±3,59 ^a	60,40±2,05

Based on statistical analysis, it shows that the effect of different level of Indigofera Flour and Pennisetum purpurreum cv. mott as Based has no significantly (P>0.05) on Consumption and Digestibility fat tail sheep

Table 3. Glucose and Blood Urea Nitrogen of fat tail sheep with Indigofera Flour and Pennisetum purpurreum cv. mott as Based feed

Treatments	Glucosa (mg/dl)	Blood Urea Nitrogen (mg/dl)	Average Daily Gain g/head/day
T0	88,50±16,42	15,95±3,40	122,00 ± 13,0 ^a
T1	81,46±16,47	28,06±6,56	138,29 ± 17,36 ^a
T2	75,20±4,99	36,38±4,95 ^b	155,86 ± 3,93 ^b
T3	69,32±21,27	30,33±4,98 ^a	146,86± 10,41 ^a

Based on statistical analysis, it shows that the effect of different level of Indigofera Flour and Pennisetum purpurreum cv. mott as Based has no significantly (P>0.05) on Glucose but has significantly (P<0.01) on ADG and Blood Urea Nitrogen on the fat tail sheep

IV. DISCUSSION

The results of the consumption and digestibility analysis of DM, OM and CP showed that the use of *Indigofera* sp leaf flour with grass-based feed has no significant ($P>0,05$) In Table 2 shows that of the four treatments (T0, T1, T2 and T3) used in this study, on the treatment T1 which had the tendency of best results CDM and CCP and T3 had the best OM consumptions of all treatments, according [6] the food that had good physical qualities such as smell, taste and texture had its high palatability so that it could stimulate fat tail sheep to increase its consumption. But the result of Digestibility of Crude Protein in the treatment of T2 which has the best resulting tendency in DDM and DOM, the effect of DCP would then be better than that of all nutritious foods, and if the higher quality of the food is determined by the [5].

The results of the glucose, blood urea nitrogen and average daily gain showed that the use of *Indigofera* sp leaf flour with grass-based feed has no significant ($P>0,05$) in glucose. According [7] the blood glucose concentration was 48-80mg/dl, compared to a study conducted by [8] between 48,13 and 62,50 mg/dl. Glucose in ruminants is 40-60% from propionate, 20% from protein (amino acids absorbed through the digestive tract) and the remaining 20% from branch chain VFA, lactic acid and glycerol. And the treatment has significantly in blood urea nitrogen and average daily gain ($P<0,01$). In a study of normal blood urea of 19-37 mg/dl [7] in a study given *indigofera* flour of 5-15% with basal feeding of deer grass can increase the level of urea in the blood in fat tail sheep. T2 has a very difference because it correlates well with the intake in DM, OM and CP. The high intake rate in fat tail sheep indicates the high level of nutrients digested in the digestive tract. According to [9] ruminance feed contains protein, both pure protein and non-nitrogen protein (NPN). The proteins in the rumen will be hydrolysed by the protease enzymes into peptides and amino acids, most of which will be degraded and de-aminated into organic acids namely VFA, NH_3 , CO_2 , and CH_4 [10]. Ammonia formed from the deamination process is combined with organic α -keto acids into new amino acid that can be used for synthetic microbial proteins. This has a positive influence with the levels of DM, OM and CP in table 8 which presents that T2 has the best quality of treatment than other treatments. According to [11] protein intake is more influenced by the quality of the protein contained in the feed. Increased tissue muscle strength contributes to increased muscle tissue synthesis. On the other hand, a good level of nutrition can provide a consistency of stable body weight gain where the nutritional balance is given according to the needs of the fat tail sheep.

V. CONCLUSION

The conclusion of this study is the use of *Indigofera* sp leaf flour with grass-based feed of as much as 10% is most effective because it has the highest average daily gain $155,86 \pm 3,93$ g/head/day with a Blood Urea Nitrogen value ($36,38 \pm 4,95$ mg/dl) and ideal Digestibility of DM ($70,85 \pm 1,43\%$), OM ($71,25 \pm 18,1\%$) and CP ($64,07 \pm 3,59\%$).

REFERENCES

- [1] Badan Statistika Nasional. Populasi Ruminasia Kecil. 2023.
- [2] Setyaningrum, A., Yuwono, P., Haryoko, I., dan Trisdiyanto, B. (2020). Bobot Potong, Persentase Karkas Semu dan Index Konformasi Karkas Domba Lokal pada Penggemukan yang diberi Pakan Berbasis *Indigofera* Sp. Prosiding Seminar Nasional Teknologi Agribisnis Peternakan (Stap), 7, 311-312., 2(1): 68-76.
- [3] Tambak, Dihansih, E. dan Kardaya, D. 2021. Pengaruh Pemberian Tepung *Indigofera* dalam Konsentrat terhadap Performa Produksi Domba Ekor Gemuk. Jurnal Peternakan Nusantara ISSN 2442-2541 Volume 7 Nomor 2.
- [4] Purwawangsa, H., dan B. W. Putera. 2014. Pemanfaatan Lahan Tidur untuk Penggemukan Sapi. J. Risalah Kebijakan Pertanian dan Lingkungan, 1 (2) : 92 –96
- [5] AOAC 2005 Official Methods of Analysis 16th edition, Washington DC: Association of Official Analytical Chemist 7. Makkar H P
- [6] Klau, P.,T. dan France, G.B. 2022. Konsumsi Dan Kecernaan Nutrien, Serta Kinerja Pertumbuhan Kambing Kacang Muda Dilihat Dari Perbedaan Jenis Kelamin dan Perlakuan Kastrasi. Livest. Anim. Res., July 2022, 20(2): 130-141
- [7] Clinical Chemistry Reference Intervals. 2009. University of California, Davis
- [8] Mitruka, B.M. dan Rawnsley, H.M. 1981. Clinical Biochemical and Hematological Reference values in Normal Experimental Animal and Normal Humans. 2nd Ed. Year Book Medical Publisher Inc., Chicago. Pp. 81-83
- [9] Chuzaemi, S. 1994. Potensi jerami padi sebagai pakan ternak ditinjau dari kinetik degradasi dan retensi jerami di dalam rumen. Disertasi Doktor. Universitas Gadjah Mada, Yogyakarta.

- [10] McDonald, P., R. A. Edward, J. F. D. Greenhalgh, and C. A. Morgan. 2010. 7th Edition. Scientific and Tech John Willey & Sons. Inc, New York.
- [11] Reynolds, C. K. (2005). Glucose Balance in Cattle. Florida Ruminant Nutrition Symposium. Department of Animal Sciences, The Ohio State University. 143-154.