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Utilization of Fermented Banana Stems Kepok Waste Using Eco enzymes on Carcass Percentage of Local Male Sheep

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Abstract. The cost of feed is the largest proportion in raising livestock. This study aims to determine the effect of the administration of fermented kepok banana stem waste using eco enzymes as an alternative feed on local sheep. This research was conducted at Alvino Farm in September - December 2022. The design used was completely randomized (RAL) with four treatments and five replications so that 20 experimental units were obtained. The sheep used were 20 local sheep with an initial weight of 19.65 ± 1 kg. The treatments given were P0 (80% field grass + 20% concentrate without fermented banana stems), P1 (70% field grass + 20% concentrate + 10% fermented banana stems), P2 (60% field grass + 20% concentrate + 20 % fermented banana stems), and P3 (50% field grass + 20% concentrate + 30% fermented banana stems). The parameters studied were final weight, slaughter weight, empty body weight, carcass weight, and carcass percentage. The results showed that the provision of fermented banana stems up to a level of 30% improve empty body weight. However, it do not improve final weight, slaughter weight, carcass weight, and carcass percentage.

Keyword: Carcass weight, Eco enzymes, Empty body weight, Feed, Final weight

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1 Introduction

Banana stems are by-products produced from the cultivation of banana plants (Musa Parasidiaca). Banana stems can be used as additional feed ingredients that are very potential for livestock because it contains high biomass [1]. According to [2] the production of banana plants in Indonesia has increased to 8.18 million tonnes, which followed by high increase in banana crop waste such as banana stems. Until now, banana stems in Indonesia has not been processed and is still wasted [2].

One of the potential uses of banana stems in the livestock sector is to become animal feed because it has a fairly good nutritional coverage [3]. Processed of banana stems could be by fermentation.

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Fermentation is the breakdown of molecular structures to become simpler with the help of certain substrates [4]. One kind of substrate is Eco enzymes which are obtained from the fermentation of fruit and vegetable peels from the kitchen or market. In the fermentation process, fruit and vegetables peels are mixed with molasses or sugar and clean water [5]. This fermentation process is also fairly simple without incurring large costs; it just takes enough time for bacteria to decompose banana stems to simpler [6]. Mixing fruit peel, fruit, and vegetable waste will produce an organic fermenting fluid called an eco enzymes [7]. The advantages of using eco enzymes as a fermenter for banana stems, aside from the relatively easy manufacturing method and cheap ingredients, the most important advantage of eco enzymes is that it contain many kinds of enzymes which are useful for breaking down or breaking lignin bonds which are quite high in banana stem waste using enzymes [8]. Fermented banana stems then could be used for animal feed. This study try to assess the effect of fermented banana stems on carcass include meat, fat and bone. Carcass is the main purpose of livestock slaughter and is the result of raising livestock [9, 10].

2 Materials and Methods

2.1 Time and Place

This research was conducted at Alvino Farm, Jalan. Tunas Mekar no 263, Tuntungan II, Medan Tuntungan District, Medan City, from September to December 2022**.**

2.2 Equipment

The equipment used is 20 individual cages with accessories, drinkers and feeders, 50 kg live weight scales with a sensitivity level of 10 g for weighing sheep, 2 kg load scales with a sensitivity of 5 g for weighing feed, and plastic sheeting for drying. kepok banana stems, drums for fermenting kepok banana stems, gunny as a tool for transporting fresh kepok banana stems, plastic rope as a binder, grinder as a filling machine, cage lighting equipment and electricity for cleaning the cage, stationery, books and calculating tools such as calculators.

2.3 Materials

The materials used were as follows. Twenty local male sheep aged ten months with an average initial weight of 19.65 ± 1 kg were used as test subjects. Field grasses as forage for livestock are used as feed ingredients and fermentation ingredients (banana stems, tofu bran, rice bran, sugarcane molasses, eco enzymes such as fermenters and water), medicines such as drugs, anti-inflammatories and vitamins. Clean water for drinking water needs is provided ad libitum.

2.4 Research design

Table 1. Treatment Feed Arrangement

Composition (%)	Treatment			
	P0	**P1**	**P2**	**P3**
Field Grass	80	70	60	50
Fermented banana stems	0	10	20	30
Palm kernel cake	5	5	5	5
pile	5	5	5	5
Corn Bran	3	3	3	3
Molasses	4	4	4	4
Urea	2	2	2	2
Vitamins and Minerals	1	1	1	1
Total	100	100	100	100
Components of the composition of the feed during the study %				
Dry Material	45,63	51,36	57,09	62,82
Crude protein	11,80	11,83	11,87	11,91
Coarse Fiber	28,61	27,81	27,02	26,22
Crude Fat	1,76	2,15	2,54	2,93
TDN	77,35	75,11	72,49	70,06

The research method used was a completely randomized design (CRD) method consisting of 4 (four) treatments and 5 (five) repetitions, where:

P0 = 80% Field Grass + 20% Concentrate

P1 = 70% Field Grass + 10% Fermented Banana Stem + 20% Concentrate

P2 = 60%Field Grass + 20% Fermented Banana Stem + 20% Concentrate

P3 = 50% Field Grass + 30% Fermented Banana Stem + 20% Concentrate

2.5 Research Parameters

- Final Weight

The final weight is determined by weighing livestock before fasting at the end of rearing [11].

- .Slaughter Weight

That the weighing of livestock at the end of rearing after getting fasting for about twelve hours

- Empty Weight

The weighing of livestock with the excretion of the digestive tract of the inside of the viscera and their urinary content (urine) is called the determination of empty weight.

- Carcass Weight

Carcass weight is defined as the animal's body weight after slaughter and slaughter and then subtracted by the spleen, liver, lungs, trachea, heart, sex organs, urine bag, digestive tract, skin, legs, tail, head and blood.

- Carcass Percentage

The percentage value of the carcass is determined by dividing the empty body weight by the carcass weight, then multiplied by 100%.

$$\rho k = \frac{Carcassweight}{Slaughterweight} x100\% \quad (1)$$

3. Results and Discussion

Table 2. Recapitulation of kepok banana stem waste to the percentage of the carcass of local sheep

Treatments	Parameters				
	Final Weight	Slaughter Weight	Empty Weight	Carcass Weight	Carcass Percentage (%)
P0	19,95 ^{tn}	19,24 ^{tn}	14,62^{a}	5,92 ^{tn}	40,43 ^{tn}
P1	20,94 ^{tn}	20,05 ^{tn}	15,47^{a}	6,31^{tn}	40,79 ^{tn}
P2	21,29 ^{tn}	20,36 ^{tn}	15,36^{a}	6,96 ^{tn}	45,30 ^{tn}
P3	21,54 ^{tn}	20,67 ^{tn}	16,26^{b}	7,06 ^{tn}	43,45 ^{tn}

Note: Different superscripts in the same row and column show no significant difference

The data above show that the use of kepok banana stem waste fermented with eco enzymes given to local sheep showed no significant effect (P<0.05) on the final weight of the sheep due to the quantity and quality of feed nutrition that does not differ much in its content. This follows the opinion of Wahyuni, who stated that the quantity and quality of feed ingredients would affect the daily weight gain of livestock [13].

The results obtained from treatment 1, treatment 2, and treatment 3 using banana stem fermentation on the slaughter weight of lokal sheep showed that the average slaughter weight increased but did not have a significant effect. From the research results, the final weight will be the same as the cut weight, not significantly different because it will be in line. Noevetri giving banana plant waste silage also has no significant or significant effect on increasing the daily weight of sheep and will not affect the slaughter weight of local male sheep. Analysis of diversity showed that the empty weight had a significant and significant effect when given fermented banana stem waste... where the empty weight of local sheep-fed fermented tofu waste had a significant effect. This was presumably because the nutrients from banana stems were utilized properly. The analysis of treatment variance P0, P1, P2 and P3 showed no significant effect (P>0.05) on the carcass weight of local rams. The table shows that the highest average carcass weight in the P3 treatment was 7.06 kg/head, and the lowest carcass weight was 5.92 kg/head in the P0 without fermentation. This was due to the influence of the quality and quantity of fermented banana stems in the rations, which were not much different and in line with the final weight and slaughter weight which were not significantly different in local male sheep in this study [14].

Based on the study results, it was concluded that the fermented ration of kepok banana stems of local sheep had no significant effect (P<0.05) on the carcass percentage of local male sheep. Carcass weight and empty weight affect the percentage of lamb carcasses produced. Sheep that produce similar carcass weights that are not significantly different will affect almost the same carcass percentage [15].

4 Conclusion

Fermentation of kepok banana stem waste to a level of 30% as an alternative feed for local male sheep significantly affected the empty body weight of local sheep. However, it did not significantly affect the final weight, slaughter weight, carcass weight and carcass percentage of local male sheep.

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