



Effect of Adding Feed Fermentation of Sago Pulp on The Palatability of The Peranakan Etawa

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Abstract

The purpose of this research is to know the effect of adding feed fermentation of sago pulp to the palatability level of the breeds of Etawa. In this study used 9 goat cattle PE age 6 months with an average initial body weight of 17 kg. Materials used include sago pulp, probion, bran, urea and molasses. Complete feed prepared from the material is sago pulp 75%, bran 20%, urea 0.25%, molasses 3% and minerals 1.25%. While the probion is added as much as 0.5% of the total feed ingredients. All feed ingredients are mixed and then fermented anaerobic for 21 days. Feeding is done according to the treatment of (100% natural grass + 0% fermented feed, 70% natural grass + 30% fermentation feed, 50% natural grass + 50% fermented feed). The observed variable is palatability. The research draft uses complete random design. Feeding with the addition of fermentation of sago pulp 30%, the consumable level 859.56 grams/day higher ($P < 0.01$) from the fermentation of sago pulp 50% (773.38 gram/tail/day) and without the feeding of sago pulp (697.62 gram/tail/day).

Keywords: sago pulp, fermentation, Peranakan Etawa goat, Feed

A. Introduction

Goat cattle was one type of livestock that was familiar with the farming system in rural areas and is a component of the people's farms (Soebandriyo, Setiadi, Pwyanto, Rangkuti, Sejati, Anggraeni, Sianturi, Hastono, and Butar-Butar, 1995). PE Goat was the result of a cross between the local Indonesian goat and the local goat from India, which was between the nuts and goat Etawah, so that the character between the two elders of the goat (Atabany, 2001). PE Goat is a dual-type goat that can produce milk and can produce meat.

The optimal utilization of local resources is a strategic step in the effort to achieve the efficiency of goat cattle production business in Indonesia. This will be more obvious, if the resource is not a direct need for competitors, such as humans or other types of livestock.

Because the feed is very closely related to productivity and production costs, then the utilization of local raw materials efficiently will have a noticeable effect on the development of livestock. Sago Pulp is a waste that is obtained in the processing of sago flour, in which the process obtained flour and sago pulp in comparison 1:6 (Rumalatu, 1981). The amount of waste that many, until now untapped as should only be allowed to accumulate in the areas of sago flour processing so as to cause environmental pollution

Based on the availability and quality, the potential sago pulp is used as a forage to be preserved. One way of preservation is by fermentation. With this method, the utilization of sago pulp supplementary abundant throughout the season can be fermented and can be used when farmers do not have time to browse or in certain seasons with long storage period. In addition, the function of the nutritisi contained in the sago pulp is expected to be maintained through the fermentation process so that when the season of famine fermentation of sago pulp can be used as a forage livestock that has a nutritisi content With good quality. Therefore, the utilization of forage feed processing technology with fermentation is expected to maintain even improve the quality of nutrients and improve palatability so that it can be a barn feed for farmers.

Utilization of waste or sago pulp as alternative feed is a good thing, although it is realized that the utilization need to get a touch of technology, because sago pulp has a limitation to be used as feed that is fiber content The case is high and the protein is low. Therefore it is necessary to do preliminary processing before given to livestock. The known processing of waste is physical, chemical and biological processing.

Many studies had been conducted in looking at the utilization of sago pulp as a feed component, both in ruminant and monogastric rations. Pantjawidjaja, Pongsapan, & Tandilinting, (1984) using Sago pulp (Metroxylon sp) up to the level of 45% with urea 3%; Nurkurnia (1989) the use of 40% sago waste in rations. Hangewa (1992) stated that with the use of complexes-NPN-carbohydrates made from urea and sago pulp with the cooking time of 116 minutes and urea dose 5.4% from dry material of sago pulp achieved optimal protein synthesis of 890 mg/g/4jam. The use of sago pulp up to 50% gives good results in Broiler chickens (Nawal 1995). In other studies, the sago pulp can be used with balanced nutrient composition of 12.5% in broiler rations and in village chicken rations up to 25% (Kompiang, Zainuddin, & Supriyati, 1995). The results of the research reported by Ralahalu (1998) explained that the use of sago pulp with *Aspergillus Niger* to 15% status in pig rations gives good results. Biyatmoko (2002) stated that the use of sago pulp in a duck ration alabio males up to about 10.6% proved to be able to improve cellulolytic activity without causing damage to the digestive organs of the Ducks.

Palatability is defined as a response given by livestock to the feed given and this is not only done by ruminants but also done by other mammal animals especially in selecting the given feed (Chruch & Pond, 1988). Pond, Sanchez, Horne, Merkel, Batubara, Ibrahim, & Ralahalu (1995) defines palatability as the attraction of a feed or feed material to cause appetite and directly eaten by livestock. Rate of consumption of feed to digest the approach of the palatability of feed, so desire and delight of livestock against a feed. Based on the background, conducted research to know the effect of adding feed fermentation of sago pulp to the palatability level of the Peranakan goat Etawa.

B. Methodology

1. The Material

In this study used 9 goat cattle PE age 6 months with an average initial body weight of 17 kg. Materials used include sago pulp, probion, bran, urea and molasses. Complete feed prepared from the material is sago pulp 75%, bran 20%, urea 0.25%, molasses 3% and minerals 1.25%. While the probion is added as much as 0.5% of the total feed ingredients.

2. Research Procedures

Sago pulp used in the sun until dry (water content \pm 20%) In order not to moldy, finely cut according to the desired particle size (\pm 3 mm). All feed ingredients are mixed and then fermented anaerobic for 21 days.

Etawa goat cattle were allowed to adapt to feed treatment for 2 weeks (up to stable consumption) before data collection was conducted. This study was conducted for three months. Feeding is done according to the following treatment:

- A: 100% natural grass + 0% fermentation feed
- B: 70% natural grass + 30% fermentation feed

C: 50% natural grass + 50% fermentation feed.

3. Parameters of Research

Parameters of this study were egg weight (gram), number of eggs per period, the age of first parent egg-laying (weeks), and importance of fresh parent egg (gram).

4. Data Analysis

Experiments were analyzed using the complete random design with mathematical models (Steel and Torrie, 1991) as follows:

$$Y_{ij} = \mu + P_i + \epsilon_{ij}$$

Description:

i = 1, 2, 3, 4, p

j = 1, 2, 3, 4, U

Y_{ij} = Observations of the I-Treatment and Ulagan Ke-j

M = General average

P_i = Effect of the I-treat

ε_{ij} = A to-I treatment error and A to-J replay

If there is a noticeable effect (P<0.05) of the treatment of a measured map, it will be followed by a double distance test Duncan (Kaps and Lamberson, 2004).

C. Result and Discussion

Palatability is the interest rate of livestock to a feed given to livestock. To know the level of palatability of a feed, can be observed with the amount of feed consumed by livestock against the type of feed. The average number of daily feed consumption on PE goat cattle per treatment is presented in Table 1. Statistical analysis results showed that different feed consumption was very noticeable (P<0.01) of each treatment. Feeding with the addition of fermentation of sago pulp 30%, the consumable level 859.56 grams/day higher (P<0.01) from the fermentation of sago pulp 50% (773.38 gram/tail/day) and without the feeding of sago pulp (697.62 gram/tail/Day). The difference in feed consumption is also caused by feed nutritional content, especially the protein content and feed energy (Negesse, Rodehutsord, & Pfeffer, 2001), the physiological Status of cattle (Fedele, Clapsa, Rubino, Calandrelli, & Pilla, 2002), The Sex of cattle and the feed material constituent Ration (Aregheore, 2006). The large number of rations consumed by a cattle can depict the palatability of the Ration (Lawrence, 1990). It is in accordance with the opinion (Van-Soest, 1994) that the feed consumption depends on the palatability, the amount of feed and environmental influence.

Tabel 1.

No	Feed material composition	Repetition 1 (gram/day)	Repetition 2 (gram/day)	Repetition 3 (gram/day)	Averages (gram/day)
1	100% natural grass + 0% fermentation of sago pulp	700,26	697,34	695,26	697,62 ^a
2	70% natural grass + 30% fermentation of sago pulp	859,19	862,59	856,89	859,56 ^b
3	50% natural grass + 50% fermentation of sago pulp	766,68	782,55	770,92	773,38 ^c

^{abc}Different aHuruf that follow the numbers in the same column indicate a noticeable difference (P<0.01).

Data from the results of this study showed that the palatability of the feeding of the highest feed is feeding with the addition of 30% fermentation of sago pulp. Low palatability with the provision of sago fermented pulp 50% compared to 30% due to the result of fermentation is too thick to cause acid odor that reduces the love of goat to consumption the feed. Likewise the lowest level of palatability of the treatment is without the feeding of fermented feed. This is due to the absence of aroma that stimulates the senses of smell in the goat, so that the appeal to consumption of feed without fermentation of sago pulp is reduced. This is in line with the statements of Devendra & Burns (1994), stating that the goat is generally a type of livestock that has the habit of choosing the feed that will be consumed. In ruminant stimulation of the smell (smell/aroma) is very important to find and choose food (Dukes, 1995). Similarly, the

stimulation (flavor) will determine whether the feed will be consumed by livestock or not (Hafez, 1962). Goats generally reject the feed that has been touched by other livestock and can not consume one type of feed alone in a long time. Goats can distinguish the taste of bitter, sweet, salty and sour and have a high tolerance to bitter taste (Devendra and Burns, 1994).

The amount of dried ingredients consumed is influenced by several factors i.e. palatability, fiber digestibility, feed flow rate, protein status (Wallace & Newbold, 1992). Physical and chemical properties of feed, production, life and development of digestive tract (Parakkasi, 1983). Palatability is a description of the nature of feed material (physical and chemical) reflected by organoleptic such as appearance, smell, flavor (bland, salty, sweet, bitter), texture and temperament so as to cause stimulation and attraction of livestock to Consumption.

In addition to the feed has good nutritional quality, which should be considered also the level of the feed palatability. The feed that has high palatality will spur livestock to consume it more. So that expected livestock nutrient substances can be digested well. Use of feed fermentation of sago pulp 30% can increase the palatability of goat cattle PE. Use of sago pulp as feed goat PE is very good. As long as this sago pulp becomes a waste or part that is not utilized by the company's processing sago is worth high economical, but should be managed by innovating. The use of sago pulp in the fermentation feed of 30% is one of the innovations to increase the value of waste to economical and reduce the level of pollution.

Differences in the feed palatability of fermented and without fermentation are very noticeable. This is due to the physical and chemical properties of the sago fermented pulp is better to be liked by livestock. In addition, this condition is also strongly influenced by the nutritional quality of the resulting fermentation feed, especially cellulose that has increased. It is according to the opinion of Parakkasi (1995) which states that the factors affecting the consumption of feedstuffs include physical properties and chemical feed. Consumption of feed with the addition of sago pulp indicates that the use of the mids and Sago and sago pulp can still be consumed by goat cattle PE well. Whereas during this time the potential feed derived from plantation waste and sago industry is wasted free and polluting the environment.

High palatability is also influenced by feed composition. Fermentation process will change the composition of feed feed. Feed composition will undergo improved nutrition after fermentation so that there is increased palatability. This is in line with the opinion of Beaver & Mould (2000) which states that the fermented feed will increase the consumption of feed caused by the composition of feed, nutrient content and digestive processes in the rumen. Meanwhile, Arbi, Rivai, Syarif, Anwar, & Anam (1977) states that the factors that affect consumption are the content of food substances and the rate of food in the gastrointestinal tract. Fermentation process is also proven to increase the nutritional value of its original ingredients because in addition to the reshuffle of complex materials becomes simpler, in the process of fermentation also formed some vitamins eg riboflavin, vitamin B12 and Provitamin A. Fermented substrates usually have a higher nutritional value than their original ingredients. This is due to the catabolic nature and anabolic microorganisms so that it is able to break down more complex components into easily digestible. The biofermentation process is expected to overhaul the structure of the cell wall chemical tissues, disconnection of lignosellulose bonds and decreased levels of lignin.

Feed consumption is the amount of feed eaten by livestock or cattle group in a certain period of time. The rate of consumption (Voluntary Feed Intake/VFI) was the amount of feed consumed by livestock when the feed material is given by Adlibitum (Parakkasi, 1995). While Tillman, Hartadi, Reksohadiprodjo, Prawirobisono, & Lebdosubodjo (1991) added that livestock will consume feed to fulfill its energy needs, so that the amount of feed that is consumed tend to cored tightly with its energy level. The amount of feed consumption is one of the best signs of animal productivity. The amount of feed consumption is the most important determining factor that determines the food substances obtained by the livestock further affects the production rate. But the feed consumption factor in ruminants is very complex and many factors are involved such as feed properties, livestock factors, and environmental factors (Wodzicka, Tomaszewska, Mastika, Djajanegara, Gardiner, Wiradarya, 1993). Ruminant feed consumption is controlled by factors that are not the same as it does on non ruminants.

Ruminant is able to digest ingredients that are rich in coarse fibre and break them into a product that can be fermented inside the rumen. The fermentation products are then absorbed and circulated in the blood that will further affect feed consumption (Arora, 1989). Kartadisastra (1997) states, ruminants in normal conditions (not in the condition of illness or being reproducing) consume a limited amount of feed according to its needs to suffice the basic

needs. Then in line with the growth, development conditions and the production rate produced by feed consumption will also increase. High low feed consumption in ruminants strongly influenced by external factors (environmental).

D. Conclusion

Feeding with the addition of fermentation of sago pulp 30%, the level of palatability is higher than the feeding of the additional feeding of sago pulp 50% and without the feeding of sago pulp sago. The addition of a fermented sago feed 50% higher levels of palatability than without the feeding of the fermentation pulp.

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