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## Effect of Fermentation Trunk Banana Shoes (*Moses Paradisiaca Forma Typica*) Body Weight against Added Bali cattle (*Bos sondaicus*)

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### Abstract

*This study aims to Determine the weight increase is of Balinese cattle to the silage of banana stems shoe. The study was conducted in March to April 2019 in Dambalo Village, Tomilito Subdistrict, North Gorontalo Regency. The research site had a capacity of 50 cattle, but this study used 20 cows roommates who were divided into 2 groups. The first group as control was given 15 kg of elephant grass and then added 1 kg head /day of fresh banana feed and the second group was given 15 kg of elephant grass and 1 kg /head /day of banana shoe silage feed treatment. While processing the data using the t-test. The Results Showed that banana stem silage feed shoe was Significantly different ( $P > 0.05$ ) to the value of the weight increase is or preferred by Balinese cattle. Whereas the value of body weight gain is higher in cattle feed given banana silage roommates Compared to Balinese cattle are fed fresh banana stems, where the average weight gain of Bali cattle is 42 to 57 grams/head/day. The conclusion is that the treatment of banana stem shoe fermentation was Significantly different ( $P > 0.05$ ) to the palatability of Balinese cattle*

**Keywords:** Bali Cattle, Fermentation, palatability

### INTRODUCTION

Bali cattle are beef cattle native to Indonesia and is the result of the domestication of Banteng (*Bos-bibosbanteng*) (Hardjosubroto, 1994), and is a native cattle of Bali. Bali cattle to be excellent beef cattle in Indonesia because they have the reproductive ability is high, and can be used as working animals in the fields and fields (Putu et al., 1998; Moran, 1990), carcass percentage tall, lean meat, heterosis high positive on a cross (pane, 1990), high adaptability to the environment and the percentage of births can reach 80 percent. Bali cattle are ruminants that have four compartments are rumen, reticulum, omasum and abomasum. So that the digestive systems of cattle feed can take advantage of having a high fiber content; therefore, cattle can consume forage in large quantities.

The feed is one of the most important factors in the cattle raising business. Livestock raising business success is determined by the feed given. The fact the field shows that there are still many farmers who provide food to the cattle regardless of quality, quantity and mode of administration of the ration. As a result of growth or productivity of livestock kept not optimal. In fact, many farmers who suffered losses as a result of feeding is less than perfect.

Beef cattle require a source of protein in the ration is consumed every day. The protein source can be derived from vegetable protein, or can also be derived from animal protein. Vegetable protein can be derived from plants or derived from a given forage in the feed, while animal protein can be derived from cow's body tersebuat coming from inside the cow's rumen.

Yet little known by the public will benefit from agricultural waste products such as banana stems. Whereas banana trunk containing carbohydrates, because gedebok bananas have carbohydrate content can be used by animals as a food source. Berdasarkan description above, the authors test the palatability to cattle using fermented feed on the stem pisangsepatu or kepok (*Musa paradisiaca forma typica*) to determine the extent of the power like cattle to feed banana stem fermentasai,

### METHODS

This research has been carried out on March 1, 2019 to 1 April 2019. The research location in the village Dambalo Tomilito District of North Gorontalo District. The number of animals used in this study amounted to 20 birds. Livestock is grouped into two, 10 animals were used as controls are given additional feed in the form of a banana tree without fermentation. 10 animals are used as cattle feed supplement treatment that is given fermented banana stems. Animals used in this study a female Balinese cow

### RESULTS AND DISCUSSION

#### Banana Stem silage

Feed treatment accorded to the Bali cattle in the study, there are two types, namely rod

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Fresh bananas and banana stem or silage fermentation. There are different types of banana stem nutrient content in different types of bananas, we can see in Table 4 below. Table 4. Difference nutrition banana stem in 3 different types of bananas

Feed ingredients	BK (%)	Ash (%)	PK (%)	SK (%)	LK (%)	BETN (%)
Banana stem Shoes	87.7	25.12	3.01	29.40	14.23	28.24
Banana Ambon rod.	80.0	19.50	1.01	19.50	0.75	59.24
Trunk Banana King	82.0	22.03	2.00	23.14	5.00	22.35

Source: 2019 data processed.

Based on the above table banana researchers took stem footwear to be materials research, in addition to good nutrition agricultural waste quantities, in this case, are very abundant banana stems shoes in the village sub-district dambalo tomilito northern Gorontalo district. Silage banana trunk is one of the products processed animal feed derived from agricultural waste in the form of molasses added a banana tree as a starter and a few other ingredients and is fermented for three days. The purpose of making silage is to preserve and maximize nutrition feed materials in the feed material. This is consistent with the statement (Institute of research and agricultural penembangan 2015) that the success of making silage means maximizing nutrient curable.

**Table 5. Differences in feed given to the treatment**

Physical and chemical properties of the feed material	Fermented banana stem	Banana stem unfermented
Smell	The smell of acidity	odorless
Color	Greenish brown	greenish white
mushroom	There are no mushrooms	There are no mushrooms
Texture	Intact and smooth	Soft

Based on Table 5 above, it appears that the silage produced has good quality. This is in line with the opinions Haustein (2003), which states that the quality of good quality silage is brownish-green or brown, flavorful acid, finely textured whole. Generally silage produced in this study greenish-brown, not encountered silage dark brown or black, because the darker the resulting silage then, the lower the quality silage (Despal et al., 2011).

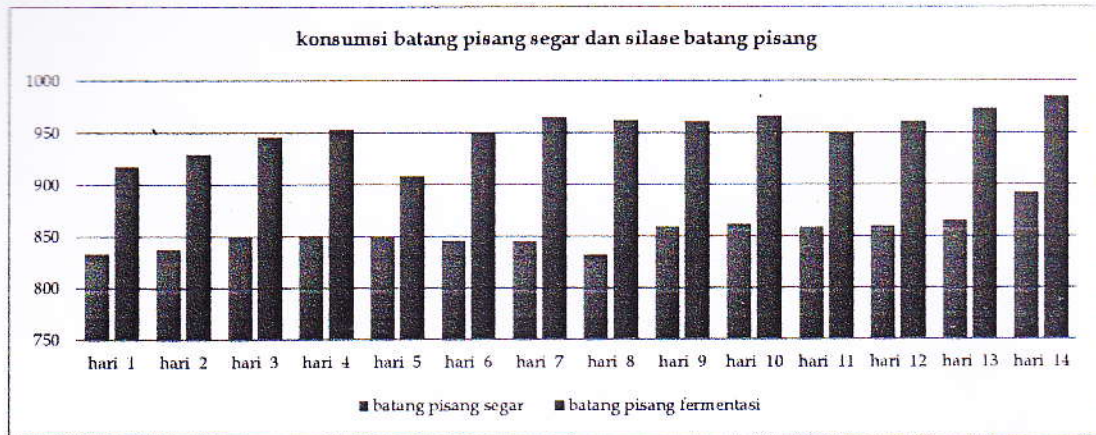
The color changes that occur during the fermentation process caused by changes that occur in plants for the aerobic respiration process, which lasted for the oxygen supply, still exist (Reksohadiprodjo, 1988). Sugar will be oxidized to CO<sub>2</sub>, Water and heat so that the temperature naik. Apabila uncontrolled temperature, silage will be dark brown to black. It menyebabkanturunnya feed value because many sources of carbohydrates are missing and digestibility of protein down.

Silage that is generated in this fragrant study acidity, but fresh and tasty. The sour smell caused by anaerobic bacteria (lactic acid bacteria) is actively working produce organic acids (Siregar, 1996) while the resulting texture is dense and smooth. It added that the characteristics of a good silage texture are still intact as early pembuatan. Tekstur silage bias becomes soft when forage moisture content or materials used in the making of silage is still quite high, so the silage many produce water. Before the making of silage, banana stems must be withered prior to lowering the water content.

Here are the average of Bali cattle feed intake between research results and silage fresh banana stem banana stems presented in Chart 1 below.

**Picture 1. Consumption of fresh feed and silage banana stem banana stems.**

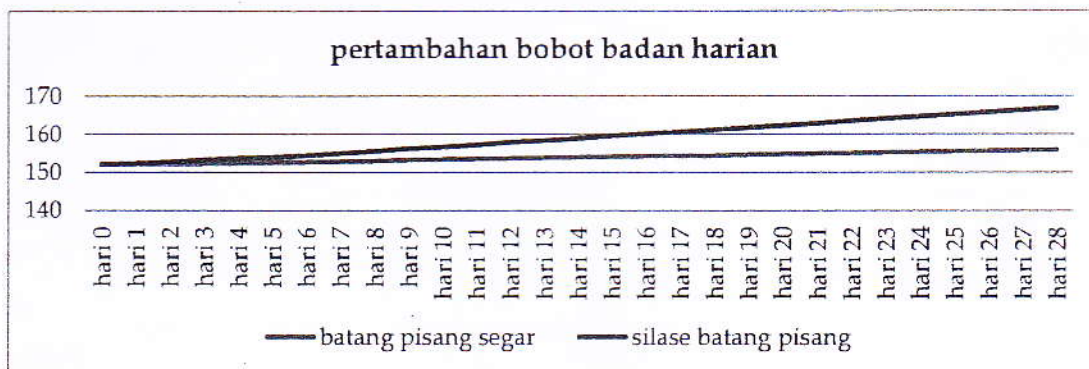
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T test results showed that silage shoe banana stems significant ( $P > 0.05$ ) or preferably by Bali cattle compared to the rod feed bananas fresh shoes. This is influenced by texture and a distinctive odor that is generated. This is consistent with the statement Rizkiyah and Agustina (2016) that the physical form of the feed, feed chopped finely to raise the level of consumption, accelerate mastication where it is reported that the length of chopped more pendekmemungkinkan compaction padasaat of making silage so that the fermentation process more perfect by microorganisms. In general, the level of digestibility of silage chopped higher than those not enumerated. This is in accordance with the opinion of Church and Pond (1988), states that the palatability includes texture, smell, taste,

Other than that, Perez, R. (1983) stated that molasses containing carbohydrates as a source of energy and minerals, both macro and micro minerals, so as to spur the growth of microbes in the rumen resulting in more cattle could digest fiber. Molasses can fix the formula becomes more compact, containing a high enough energy, can improve the palatability and flavor and increase the microbial activity in the rumen. Molasses is widely used in cattle feed to increase appetite. So the Bali cattle in the study who had a high level of palatability are given feed silage banana stems.

**Added Body Weight**



Daily body weight gains Bali cattle weighing results obtained from the final body weight were reduced by initial body weight divided by an interval of weighing, i.e. 7 days. A comparison of the mean weight gain between the given Bali cattle feed silage banana stems and given fresh banana stems for research can be seen in the image below.

Based on the picture above, it appears that the bodyweight gains Bali cattle given silage banana stem higher than Bali cattle feed given fresh banana stems. Bodyweight daily in cows given silage in the first week amounted to 42 grams / head / day and in week 2 to week 4 to 57 grams / head / day whereas in cows given stems of fresh bananas only increased by 14 grams / head / day. This significant difference occurs because the silage banana stems have more complete nutrition when compared with fresh banana stem. In addition, the banana stem silage is composed of various types of feed ingredients, such as molasses and rice bran.

This is in line with the opinions Garsetiasih et al. (2013), which states that rice bran could be used as feed concentrate that contains a lot of energy and palatable. Rice bran contains nutrients that BK 86.5%, 8.7% ash, PK 10.8%, 11.5% crude fiber, fat 5.1%, 50.4% BETN, calcium phosfor 0.2% and 2.5%. The provision of rice bran as feed for ruminants amplifier can deliver good growth, large cattle and fat fast.

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Bodyweight gain during the study can be seen in figure 2, with the average weight gain in the first week amounted to 42 grams / head / day (3 kg / ecor / week) and at 57 grams / head / day (4 kg / head / week). Mean weight gain was lower when compared with the statement Mastika (2003) that is genetically the growth rate of Bali cattle slower than cattle Madura, but with the provision of good quality feed cattle Bali is able to grow with the increase of daily gain 660 grams / day at the age of growth ,

Added also by Soedjana *et al.*, (2012) which states that the Bali cow has the disadvantage that the relatively slow growth. However, cattle Bali has advantages adaptive to the tropical environment, able to live with low-quality feed and strong resistance to disease. Tomaszewska *et al.*, (1993) state the rate of weight gain of cattle affected by age, initial body weight associated with severe fattening phase of adult yaitu apabila fattening bovine growth at the beginning are good, then the cow to a peak growth will also be good. In addition, the feed is also a factor for weight gain Bali cattle, both in terms of quality and quantity.

### Conclusion

Based on the results showed that the banana stalk silage shoes (*Musa paradisiaca* forma typica) significantly different ( $P > 0.05$ ) against palatability Bali cattle (*Bos sondaicus*), or preferable to feed fresh banana stem. Silage banana stems shoes (*Musa paradisiaca* forma typica) further improve Bali cow body weight compared with fresh banana trunk in which the average weight gain of Bali cattle by 42 to 57 grams / head / day.

### Suggestion

As for my suggestion that further studies should be done on silage fermentation time banana stems shoes, against the physical and nutritional quality silage banana stems shoes.

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## Effect of Fermentation Trunk Banana Shoes (Moses Paradisiaca Forma Typica) Body Weight against Added Bali cattle (Bos sondaicus)

BY

Arif Umbang Rokhayati

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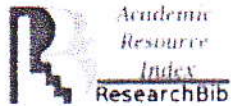
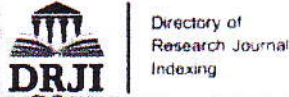
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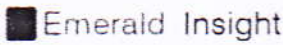
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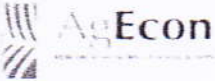
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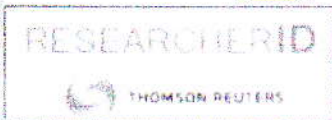
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*by* Arif Umbang Rokhayati

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**Arif Umbang Rokhayati**

*<sup>1)</sup>Lecturer in the Department of Animal Husbandry, Faculty of Agriculture, University of Gorontalo*

*Email: umbangrokhayati@gmail.com*

**ABSTRACT**

**This study aims to Determine the weight increase is of Balinese cattle to the silage of banana stems shoe. The study was conducted in March to April 2019 in Dambalo Village, Tomilito Subdistrict, North Gorontalo Regency. The research site had a capacity of 50 cattle but this study used 20 cows roommates were divided into 2 groups. The first group as control was given 15 kg of elephant grass and then added 1 kg head day of fresh banana feed and the second group was given 15 kg of elephant grass and 1 kg head day of banana shoe silage feed treatment. While processing the data using the t-test. The Results Showed that banana stem silage feed shoe was Significantly different ( $P < 0.05$ ) to the value of the weight increase is or preferred by Balinese cattle. Whereas the value of body weight gain is higher in cattle feed given banana silage roommates Compared to Balinese cattle are fed fresh banana stems, where the average weight gain of Bali cattle is 42 to 57 grams head day. The conclusion is that the treatment of banana stem shoe fermentation was Significantly different ( $P < 0.05$ ) to the palatability of Balinese cattle**

**Key words:** Bali Cattle, Fermentation, palatability

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## INTRODUCTION

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## RESULTS AND DISCUSSION

### Banana Stem silage

Feed treatment accorded to the Bali cattle in the study, there are two types, namely rod fresh bananas and banana stem or silage fermentation. There are different types of banana stem nutrient content in different types of bananas, we can see in Table 4 below. Table 4. Difference nutrition banana stem in 3 different types of bananas

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**Trunk fermentation Banana Shoes (*Musa paradisiaca forma typica*) Against palatability Bali cattle (*Bos sondaicus*)**

Silage that is generated in this study fragrant acidity, but fresh and tasty. Sour smell caused by anaerobic bacteria (lactic acid bacteria) are actively working produce organic acids (Siregar, 1996). While the resulting texture is dense and smooth. It added that the characteristics of a good silage texture is still intact as early pembuatan. Tekstur silage bias becomes soft when forage moisture content or materials used in the making of silage is still quite high, so the silage many produce water. Before the making of silage, banana stems must be withered prior to lowering the water content.

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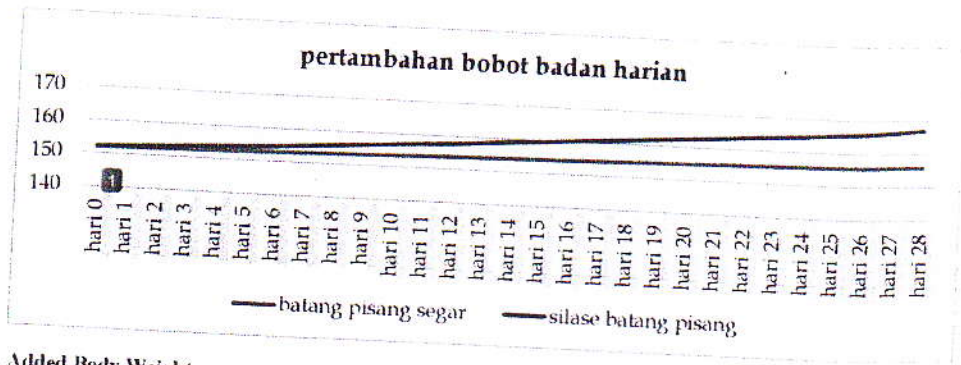
Picture 1. Consumption of fresh feed and silage banana stem banana stems.



T test results showed that, silage shoes banana stems significant ( $P > 0.05$ ) or preferably by Bali cattle compared to the rod feed bananas fresh shoes. This is influenced by texture and a distinctive odor that is generated. This is consistent with the statement Rizkiyah and Agustina (2016) that the physical form of the feed, feed chopped finely to raise the level of consumption, accelerate mastication where it is reported that the length of chopped more pendek memungkinkan compaction padasaat of making silage, so that the fermentation process more perfect by microorganisms. In general, the level of digestibility of silage chopped higher than those not enumerated. This is in accordance with the opinion of Church and Pond (1988), states that the palatability includes texture, smell, taste.

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Trunk fermentation Banana Shoes (*Musa paradisiaca forma typica*) Against palatability Bali cattle (*Bos sondaicus*)



### Added Body Weight

Daily body weight gain Bali cattle weighing results obtained from the final body weight was reduced by initial body weight divided by an interval of weighing ie 7 days. Comparison of the mean weight gain between the given Bali cattle feed silage banana stems and given fresh banana stems for research can be seen in the image below.

Based on the picture above, it appears that the body weight gain Bali cattle given silage banana stem higher than Bali cattle feed given fresh banana stems. Body weight daily in cows given silage in the first week amounted to 42 grams / head / day and in week 2 to week 4 to 57 grams / head / day whereas in cows given stems of fresh bananas only increased by 14 grams / head / day. This significant difference occurs because the silage banana stems have a more complete nutrition when compared with fresh banana stem. In addition, the banana stem silage is composed of various types of feed ingredients, such as molasses and rice bran.

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Body weight gain during the study can be seen in figure 2 with the average weight gain in the first week amounted to 42 grams / head / day (3 kg / ekor / week) and at 57 grams / head / day (4 kg / head / week). Mean weight gain was lower when compared with the statement Mastika (2003) that is genetically the growth rate of Bali cattle slower than cattle Madura, but with the provision of good quality feed cattle Bali is able to grow with the increase of daily gain 660 grams / day at the age of growth.

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**Trunk fermentation Banana Stems (*Musa paradisiaca forma typica*) Against palatability Bali cattle (*Bos sondaicus*)**

## CONCLUSION

Based on the results showed that the banana stalk silage shoes (*Musa paradisiaca* forma *typica*) significantly different ( $P < 0.05$ ) against palatability Bali cattle (*Bos sondaicus*), or preferable to feed fresh banana stem. Silage banana stems shoes (*Musa paradisiaca* forma *typica*) further improve Bali cow body weight compared with fresh banana trunk in which the average weight gain of Bali cattle by 42 to 57 grams/head/day.

## Suggestion

As for my suggestion that further studies should be done on silage fermentation time banana stems shoes, against the physical and nutritional quality silage banana stems shoes.

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# Forma Typica) Body Weight Against Added Bali cattle (Bos sondaicus)

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