Utilization complete feed fermented based waste peel cassava (Manihot esculenta Crantz) on the characteristics carcass and non carcass of male Kacang Goat

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Abstract. The study aims to determine the effect of the utilization complete feed fermented based waste peel cassava (Manihot esculenta Crantz) on carcass characteristics and non carcass male kacang goat. This study uses a completely randomized design method (CRD) with 4 treatments and 3 replications. The diets used in this research was complete feed fermented with different percentage of cassava peel, among others P0 (cassava dried 75 % and cassava peel 0 %), P1 (cassava dried 55 % and cassava peel 20 %), P2 (cassava dried 35 % and cassava peel 40 %) and P3 (cassava dried 15 % and cassava peel 60 %). The variables observed in this study include slaughter weight, carcass weight, non carcass weight and carcass percentage. The results obtained in this study indicate that utilization of complete feed fermented based waste cassava peel was not significantly different (P> 0.05) on slaughter weight, carcass weight, non carcass weight and carcass percentage. The conclusion of this study is utilization of complete feed fermented based cassava peel waste does not affect the characteristics carcass and non carcass.

1. Introduction

Goat is one of livestock that have the potential to produce meat. This potential can be maximized by improving maintenance management, especially in terms of feed. Feed here must be available with good quantity and quality and have a cheap price. One of the feeds that can be utilized is cassava peel (Manihot esculenta Crantz) which is the residual waste produced by cassava tubers for food processing. Cassava peel has a high carbohydrate content but the protein content is still low and the fiber is quite high around 17.5 - 27.4% [1], therefore it is necessary to have a feed processing technology in the form of complete feed fermented according to munawaroh [2] complete feed by utilizing local feed sources by fermentation can increase the nutritional value of the feed. Added ngadiyono [3] which states the utilization of agricultural waste can be maximized by making a complete feed. Based on this description, it is necessary to research on utilization of complete feed based cassava peel waste (Manihot esculenta Crantz) on characteristics carcass and non carcass of male kacang goat.
2. Materials and methods

2.1. Materials and tools

Materials used in this study were male kacang goat as much as 12 heads weighing 10 kg ± 1.30 kg. The study was conducted in SihopukBaru village, Halongonan District, Padang Lawas Utara Regency which was implemented in April 2019 until July 2019. Feed ingredients used in this study include molasses, rice bran, cassava peel, cassava dried, soybean meal, urea and minerals, while the equipment used includes 12 individual cages of 1 x 0.5 m² size equipped with a feed container and drink, besides that we also prepare a scale and tools for mixing and drying feed ingredients used in this study. Slaughtering of livestock is carried out at the end of the maintenance period, by randomly picking up as many as two heads from each treatment then separating carcass and non carcass.

2.2. Research methods

The study was conducted experimentally using a Completely Randomized Design (CRD) 4 treatments and 3 replications. The treatment is given as follows: P0: complete feed fermented with 75 % cassava dried and 0 % cassava peel, P1: complete feed fermented with 55 % cassava dried and 20 % cassava peel, P2: 35 % cassava dried and 40 % cassava peel and P3: complete feed fermented with 15 % cassava dried and 60 % cassava peel.

Table 1. Complete feed formulation based cassava peel

| Feed Ingredients (%) | P0   | P1   | P2   | P3   |
|----------------------|------|------|------|------|
| Molasses             | 5    | 5    | 5    | 5    |
| Rice Bran            | 6    | 6    | 6    | 6    |
| Cassava Peel         | 0    | 20   | 40   | 60   |
| Cassava Dried        | 75   | 55   | 35   | 15   |
| Soybean Meal         | 12   | 12   | 12   | 12   |
| Urea                 | 1    | 1    | 1    | 1    |
| Minerals             | 1    | 1    | 1    | 1    |
| Total                | 100  | 100  | 100  | 100  |
| CP (%)               | 12.14| 12.44| 13.50| 14.15|
| CF (%)               | 6.91 | 7.02 | 7.10 | 7.37 |
| EE (%)               | 0.58 | 0.54 | 0.63 | 0.77 |
| ME (kcal/kg)         | 2,320.4| 2,392.8| 2,464.8| 2,536.8|
| TDN (%)              | 64.15| 66.16| 68.15| 70.14|

2.3. Observed variables

Variables observed in this study were characteristics carcass and non carcass of male kacang goat which included slaughter weight, carcass weight, non carcass weight and percentage of carcass. Slaughter weight is obtained by weighing livestock just before livestock is slaughtered after being fasted for 24 hours. Carcass and non carcass weight is obtained by separating the carcass and non carcass parts then weighing each part. Carcass percentage is obtained by calculating carcass weight divided by slaughter weight multiplied by 100%.

2.4. Research implementation

This study was started by making complete feed fermented feed by weighing all feed ingredients in accordance with the predetermined ration composition then spread on tarpaulin and then mixed until homogeneous, then moistened with Em4 which was mixed with water, molasses and urea. Feed ingredients have been mixed inserted into the silo and then closed the meeting that the situation of the anaerobic silo and then stored for 7 days.
2.5 Data analysis
Data obtained were analyzed with a Completely Randomized Design (CRD) with 4 treatments and 3 replications and if different data were obtained Duncan's test was obtained.

3. Results and discussion
The research variables were observed in this study include the slaughter weight, carcass weight, non-carcass weight, and carcass percentage. The results of the analysis of the effect of the use of complete feed based on cassava peel are presented in Table 2.

| Treatments | Slaughter Weight (kg) | Carcass Weight (kg) | Non Carcass Weight (kg) | Carcass Percentage (%) |
|------------|------------------------|----------------------|-------------------------|------------------------|
| P0         | 9.94±1.01              | 4.17±0.37            | 2.69±0.16               | 41.99±0.56             |
| P1         | 11.09±1.71             | 4.85±0.86            | 2.78±0.10               | 43.60±1.07             |
| P2         | 11.66±1.44             | 5.19±1.40            | 2.92±0.02               | 44.08±6.58             |
| P3         | 12.60±0.52             | 5.58±0.08            | 2.81±0.44               | 44.31±1.16             |

From Table 2 we can know the effect of utilization of complete feed fermented based cassava peel on slaughter weight of pieces’ increases with an increase in the provision of cassava peel. Where results obtained each P0 of 9.94 ± 1.01 with 0% cassava peel, P1 of 11.09 ± 1.71 with 20% cassava peel, P2 of 11.66 ± 1.44 with 40% cassava peel and P3 of 12.60 ± 0.52 with 60% cassava peel, though based on analysis of variance showed no significant effect (P>0.05) between treatments on slaughter weight. These results are consistent with the results of Agnihorti research [4] where the provision of complete feed with different protein and energy levels has no effect on slaughter weight. Nusi added [5] which stated that each increase in slaughter weight is always followed by an increase in carcass weight, this can be seen in Table 2 where the increase in slaughter weight is followed by an increase in carcass weight which means the increase in slaughter weight is related to the growth of body parts or carcass.

Carcass weight in this study has a positive correlation with slaughter weight where along with the increase in provision of cassava peel an increase in carcass weight, this is because slaughter weight is related to the growth and development of parts of the carcass, though based on analysis of variance showed no significant effect (P>0.05) between the treatment of carcass weight. Where each treatment has a P0 carcass weight of 4.17 ± 0.37, P1 of 4.85 ± 0.86, P2 of 5.19 ± 1.40 and P3 of 5.58 ± 0.08, these results are still below the results of Mirdhayati’s research [6] which examined the carcass profile of male kacang goat where an average carcass weight of 7.20 ± 1.40 was obtained in male kacang goats with an age below 1.5 years.

Non carcass weight in this study showed the results of analysis of variance were not significant (P>0.05) between treatments. This result is presumably due to the result of slaughter weight which is also not significantly different between treatments, this is because some parts of the non-carcass growth rate is the same as the rate of growth of the body of livestock so that when the slaughter weight increases the non carcass weight will increase.

Percentage carcasses in this study showed a different analysis of variance is not significant (P>0.05) between treatments. This result is allegedly due to the use of complete feed fermented based cassava peel waste also has no effect on carcass weight, this is because percentage carcass is strongly influenced by carcass weight. These results are almost the same as the results of the Agnihorti study [4] where a percentage carcass of 43-46% was obtained in goats fed complete feed.

4. Conclusions
Utilization of complete feed fermented based cassava peel waste does not affect the characteristics of carcass and non-carcass of male kacang goat.
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