AVAILABILITY AND UTILIZATION OF AGRICULTURAL FOOD AS A SOURCE OF BALI BEEF IN MOWEWE SUB-DISTRICT, EAST KOLAKA

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ABSTRACT

This study aims to analyze the availability and utilization of agricultural by-products as a source of feed for Balinese cattle in Mowewe District, East Kolaka Regency. The research was conducted in March-May 2020. The research respondents involved 83 cow breeders. The data analysis used is descriptive analysis. The availability of agricultural food waste feed is calculated based on the formula Muller et al. (1974). The variables observed were the type of feed from agricultural by-products and the potential availability of agricultural by-products as feed for Bali cows in Mowewe Sub-district, East Kolaka Regency. The results showed that with the production of forage BK/Ha 167602.80 tons/year. The availability and use of agricultural by-products as a source of feed for Bali cattle include: Type of feed from agricultural by-products, namely rice straw, sweet potato, maize and peanuts. Potential availability of agricultural by-products as feed, namely, agricultural by-products in the research location for producing rice straw 2073.75 tons/year, 6000 tons/year of sweet potato waste, 54000 tons of corn waste/year and 6000 tons of peanut waste/year.

Keywords: Forage and animal feed Provision of Feed in Bali Cattle Farms

INTRODUCTION

Bali cattle have several advantages, including having high fertility and being able to adapt well to tropical climates. Southeast Sulawesi (Sultra) is one of the provinces that develops and maintains Balinese cattle. Basically raising cattle must pay attention to several aspects to increase productivity including aspects of seeds, aspects of feed, aspects of reproduction, aspects of housing and aspects of marketing. Another advantage of Bali cattle is that it contributes significantly to local farmers’ income. However, behind the existing advantages, there are also obstacles in its maintenance, namely susceptibility to Bali zekte disease and not resistant to ecto parasites. The most significant obstacles are health problems due to disease and feed deficiency.

Feed is a fundamental problem in a farm, namely Bali cattle. Feed is one of the components in livestock cultivation that plays an important role in achieving the desired results in addition to management and breeding. Feed is useful for basic needs, production and reproduction. Therefore, livestock must get feed in accordance with their needs, both in the amount that can be consumed and the content of the nutrients given.

Feeding that is not as needed will cause a decrease in growth, production and reproduction. Therefore, it needs quality feed and its continuous availability. The maintenance of Bali cattle in Mowewe District is still based on people’s husbandry, so it is not optimal as a Bali cattle production center. This is due to the lack of knowledge of breeders regarding good Bali cattle maintenance management, especially feeding management. Therefore, it is necessary
to conduct research on the evaluation of Bali cattle feeding management in Mowewe District, so that alternative improvements can be formulated to increase Bali cattle production in this region.

**Research purposes**

To analyze the availability and use of agricultural by-products as a source of feed for Bali cows.

**Population and Research Sample**

Population is a research generalization area that has certain qualities and characteristics (Sugiyono, 2010: 117). The population in this study were all residents in Mowewe District who work as Bali cattle breeders, as many as 494 breeders.

According to Arikunto (2002), if the population is more than 100, then a sample can be taken between 10-15% or 20-25% or more, depending on the ability of the researcher in terms of time, energy and cost, the narrow area of the observation area, and the size of the the risk borne by the researcher. The sample of this research is all parts of the population according to Arikunto's opinion, so that the research sample is taken 10%, with the sampling technique of this study, namely the probability sample using simple random sampling, namely the Slovin formula as follows:

\[
n = \frac{N}{1+N\epsilon^2}
\]

Information: 
\(n\) = Number of samples  
\(N\) = total population  
\(\epsilon\) = fault tolerance limit (10%)

So that the sample is obtained as follows:

\[
\begin{align*}
\text{n} &= \frac{494}{1+494(0.1)^2} \\
\text{n} &= \frac{494}{1+494(0.01)} \\
\text{n} &= \frac{494}{1+4.94} \\
\text{n} &= \frac{494}{5.94} \\
\text{n} &= 83.16 \text{ can be rounded to } 83.
\end{align*}
\]

From the sampling analysis based on the formula Slovin above with a fault tolerance limit of 10%, the research sample can be determined as many as 83 Balinese cattle breeders in Mowewe District, East Kolaka Regency.

**Types and sources of data**

The type of data used in this research is quantitative, that is, the type of data that can be measured or calculated directly, in the form of information or explanation expressed in numbers or in the form of numbers (Sugiyono, 2010: 15).

The source of the data obtained is the source whose validity is can be accounted for in research which is divided into:

1. Primary data is data obtained first hand by researchers relating to research variables or in other words, data obtained from respondents in research locations through questionnaires.
2. Secondary data is data that refers to information collected from existing sources. Secondary data sources include notes or documentation, government publications, media, internet, and so on (Sekaran and Uma 2011).

**Research Observation Parameters**

The parameters that are observed in this study are as follows:

- a) Potential availability of agricultural by-products as feed
- b) Types of feed from agricultural by-products

**Data Collection and Analysis Techniques**

To obtain data in this study, it can be done in 2 (two) ways, namely:

1. Library studies are conducted to examine documents in the form of scientific journals, textbooks, laws and regulations, and papers related to research problems.
2. Observation. Conducted through field observations of the object of research. These observational activities include evaluating the feeding management of Bali cattle. The techniques used to obtain information on the research location are:
   a) Interview.

   This method is carried out by conducting direct interviews with selected respondents in collecting
information relevant to the problem under study.

b) Questionnaire.
This method is carried out by providing a list of questions that have been prepared and distributed to respondents to be answered according to the actual reality.

c) Documentation.
Take notes on official documents or take pictures at the research location.

Data Analysis Techniques
The availability of agricultural food waste feed is calculated based on the formula Muller et al. (1974) are as follows:

a. Rice straw = (2.5 x harvested area x 0.75) tonnes BK / year
b. Corn straw = (6.0 x harvested area x 0.75) tonnes BK / year
c. Sweet potato leaves = (1.5 x harvested area x 0.80) tonnes BK / year
d. Peanut straw = (2.5 x harvested area x 0.60) tonnes BK / year

Data Processing Techniques and Variable Measurement Scale
Data processing, that is, after the data is collected, it will be processed through the stages or methods used in data processing, namely:

1. Editing is an activity to re-examine the data obtained as needed.
2. Tabulation is the collection and arrangement of data into tables according to the needs of the analysis and then the data will be analyzed using predetermined analytical tools.
3. Perform data input using a computer program.
4. Interpretation is to explain the results of data processing from a computer program.

RESULTS AND DISCUSSION

Waste Agricultural and plantation products are generally available in various regions in Indonesia, but this potential has not been optimally developed for use as animal feed. Waste agricultural products in Mowewe District, East Kolaka Regency can be seen in Table 1.

<table>
<thead>
<tr>
<th>No.</th>
<th>Agricultural waste</th>
<th>Area of observation (ha)</th>
<th>Coefficient 1</th>
<th>Coefficient 2</th>
<th>Estimated Production (tonnes / year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rice straw</td>
<td>1,185</td>
<td>2.5</td>
<td>0.7</td>
<td>2073.75</td>
</tr>
<tr>
<td>2</td>
<td>Sweet Potato Waste</td>
<td>5</td>
<td>1.5</td>
<td>0.8</td>
<td>6000</td>
</tr>
<tr>
<td>3</td>
<td>Corn Waste</td>
<td>12</td>
<td>6</td>
<td>0.75</td>
<td>54000</td>
</tr>
<tr>
<td>4</td>
<td>Peanut Waste</td>
<td>4</td>
<td>2.5</td>
<td>0.6</td>
<td>6000</td>
</tr>
</tbody>
</table>

a) Types of feed from agricultural by-products
Based on Table 1, it is known that there are several agricultural commodities that have waste and can be used as animal feed. These commodities are rice straw, sweet potato, corn and peanuts. JERami rice is agricultural waste that has the potential to be used as animal feed. However, the use of rice straw as animal feed is not optimal because of the low crude protein content (3 - 4%) and the high crude fiber content (32 - 40%) so that it has a low digestibility level, which ranges from 35 - 37% (Haryanto and Winugroho), 2000). The low nutritional value and digestibility of the dry matter of rice straw means that technological innovation is needed to improve the quality of rice straw as animal feed. Lack of knowledge and counseling from the government is a separate obstacle so that technological innovation is not carried out.

b) Potential availability of agricultural by-products as feed
Food crops such as rice, sweet potatoes, maize and peanuts are potential sources of animal feed in addition to grass. The agricultural waste is in the form of straw or parts of the leaves and stems of plants after the harvest is
taken. Besides being a fiber feed, rice straw, peanuts, maize and sweet potato leaves are also a source of protein for ruminants. A mixture of rice straw, corn straw, waste beans and sweet potatoes is sufficient to support the main life and production of cattle farming.

Based on Table 1, it can be seen that the agricultural by-products at the research location for yielding rice straw 2073.75 tons/year, 6000 tons/year of sweet potato waste, 54000 tons of corn waste/year and 6000 tons of peanut waste/year.

Rice straw and corn straw can be used as a source of fiber feed. Rice and corn straw are often used during the dry season. Other agricultural crop wastes such as beans and sweet potatoes are used as a source of protein feed, to complement the lack of protein from rice straw or corn straw.

**CONCLUSION**

Based on the results of research and discussion, it can be concluded that the availability and utilization of agricultural by-products as a source of feed for Bali cattle in Mowewe District, East Kolaka Regency include:

1. Types of feed from agricultural by-products are rice straw, sweet potatoes, corn and peanuts.
2. The potential availability of agricultural by-products as feed, namely, agricultural by-products at the research location for producing rice straw: 2073.75 tons/year, 6000 tons/year of sweet potato waste, 54000 tons of corn waste/year and 6000 tons of peanut waste/year.

**REFERENCES**


