



The Utilization of Soybean Aircraft Waste as A Additional Material in The Process of Manufacturing Goat Feed Materials

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Abstract

The processing process in industry does not only produce the main product but also produces residual production which is usually not used anymore and is called waste. Soybean aircraft waste is a of tempe production by 10% of the total amount of soybean aircraft waste. Environmental problems caused by waste and also the supply of imported feed at a fairly high price underlies researchers to make nutrient-rich feed products by utilizing soybean aircraft waste. The Research content contained in soybean aircraft waste in the form of energy is 306.48 kcal/kg, crude protein 14.45%, fat 3.15% and crude fiber 47.01% . The purpose of this study is to produce a produce a product that is expected to be a solution in reducing waste from the production of soybeans as an additive jin feed processing. The Methods used in this study is a qualitative descriptive study. The Result in a this journal is additional feed product using soybean aircraft waste that provided benefits for increasing appetite, milk production and meat quality in livestock.

Keywords : Feed, Environment, Livestock, Soybean Aris Skin, Waste

Introduction

Tandam Hulu I village is one of the village in Deli Serdang Regency which is directly adjacent to Binjai Cty. This village has 11 Hamlets. The total population is approximately 3116 people with an area of 2425 hectares (Head of Village of Tandam Hulu I). The village of Tandam Hulu I has the majority of people who are Javanese, with the average population working in the plantation, agriculture and animal husbandry sectors (Lubis et al., 2022).

In today's industrialized era, waste is one of the serious problems facing almost every industry. Government Regulation No.18/1999 Jo.PP 85/1999, waste is defined as the residue or waste from a business and or human activity. In other words, waste is left over from an activity that is no longer useful or of economic value. However, with proper management, waste can be used as a useful product and also increase its economic value (Lubis et al., 2022).

Indonesia as country agrarian has diverse natural resources and overflo so that potential

produce feed local independent. A number of thigh feed which couldreliable, namely corn, cassava, cake, bran paddy, flour fish and peanutsoya bean. Through the touch of technology that is developing rapidly at this time, the packaging material is could obtained (Susantyo, 2016).

Becomes ingredientalternative. The current demand for feed still relies on imports even though this can affect the availability of supplies due to high prices (Cao et al., 2022). However, by observing which conducted Indonesia have source power natural norhumans who are able to produce independent feed at a more economical price (Tsekleves et al., 2022). Indonesia has a variety of traditional foods that are known in foreign countries the only one is tempeh (Garg, 2021). Tempeis a food made from soybean seeds or several other ingredients which are fermented from tempeh yeast (Mann et al., 2022).

Each process of making tempe produces waste in the form of soybean husk by 10% of the amount of soybeans used and the waste is simply thrown away. whereas the soybean husk has

crude protein content of 14%, crude fat 3.04%, crude fiber 47.01% with a calorie content of 3,060.08 kCal per Kg (Lin et al., 2022). Seeing this content, soybean husk waste is considered suitable to be used as an additional material in the process of making animal feed (Churuangsuk et al., 2022).

The increasing demand for animal protein products continues to increase along with the increasing population. The quality of livestock consumed is also considered so that breeders will try their best to manage their farms to produce superior livestock. The main factor that affects the quality and productivity of livestock is feed apart from genetic factors and maintenance systems. According to the Big Indonesian Dictionary (KBBI), feed means fodder. Feed is adopted from the

Javanese language which means food or intake given to livestock. The problem that often occurs in farmers is the amount of feed availability and the low nutritional content of the feed.

Environmental problems caused by waste and also the supply of imported feed at a fairly high price underlies researchers to make nutrient-rich feed products by utilizing soybean husk waste. Tempe production waste which may if not managed properly can cause environmental pollution with the product, soybean husks which have the nutrients needed by livestock are processed into raw materials.

Addition to feed products with good quality at economical prices so that the need for livestock can be met with superior animal quality.

Material and Method

The Method used in this study is a qualitative descriptive study. The data collected are primary and secondary data. Primary data were collected through field observation, interviews with goat farm managers. Secondary data used in the form of previous research journal.

The research was conducted at the Village Owned Enterprises (BUMDES) in Tandam Hulu I Village, Hamparan Perak District, September 2022. The analysis carried out was identification related to the utilization of epidermis waste in one of the goat farms in Tandam Hulu I Villa.

Results and Discussion

The Process of Making Goat Animal Feed



Figure 1. Feed Additives According to Chuzaemi et al (2003)

Additives With Soybean Aris As Raw Material

Animal feed is food given to livestock which generally must contain all the nutrients needed by livestock and must be in a balanced state see figure 1. Soybean husks are used to reduce the amount of grass used and also provide additional nutrients needed by livestock. Soybean husk was chosen as an additional raw material in animal feed because it is an industrial waste that is still rarely used so it is easy to obtain and has nutritional content that is in accordance with the needs of livestock (Chou et al., 2018). This feed innovation can also reduce production waste in the tempe industry. The use of soybean husk is obtained from one of the tempe industrial production houses where so far the waste of soybean husk is only wasted and not utilized (Bunge et al., 2022). Soybean husk is useful as an additive for animal feed because it has nutrients that match the needs of livestock (Tipe & Kota, 1994). There are several steps in the process of making animal feed additives, namely:

a. Tools and materials

- Tool
 - 1) Drum as a storage place for feed products.
 - 2) Tarpaulin as a base during the process of making feed.
 - 3) Shovel as a tool to stir raw materials in the process of making feed.
 - 4) Scales
- Ingredient
 - 1) Soybean husk
 - 2) Corn ash
 - 3) Mineral

b. Origin of Material

- Soybean Aris Skin

Soybean husks were obtained from one of the tempe processing houses located in the village of Tandem Hulu I, Hamparan Perak District, Deli Serdang Regency, North Sumatra.

- Corn ash

Corn ash was obtained from one of the corn processing plants located in the village of Tandem Hulu I, Hamparan Perak District, Deli Serdang Regency, North Sumatra.

- Mineral

Minerals are obtained from sellers or providers of feed for livestock, Arjuna's shop, which is located on Jl. Lotus No.77, Pahlawan Village, North Binjai District, Binjai City, North Sumatra (Pratiwi, 2019).

c. Product Design

Animal feed additives using soybean husk are actually very easy to process and have a short time efficiency in their manufacture. It's just that not all breeders understand the process of making or designing these additional processed products for animal feed. Therefore, there are several steps in the design or manufacture of the process that need to be considered, namely:

- 1) First, prepare the tools and materials needed in the process of making feed.
- 2) Next, prepare a large enough area to put the base used to mix the feed raw materials.
- 3) Then, mix all the feed raw materials in a ratio of 1 kg of Mineral plus 20 kg of dry soybean husk and 35 kg of corn ash.
- 4) Then, stir evenly all the ingredients until evenly distributed.
- 5) Finally, store the feed in the drom and cover it to avoid contamination with other objects. Feed is ready to use.

d. Feed use rules

Feed with additional raw material soy skin can be used for goats that are 6 months old (Kusuma, 2019). This method of feeding with additional ingredients of soybean epidermis is only given once a day at lunch (Abubakar et al., 2022). At the time of the first lunch, grass was given to the feed container, then on it was given additional feed of soybean epidermis with a ratio of 20 kg of grass given 2 kg of soybean epidermis feed.

The Benefits of Adding Soybean Aris As An Additive To Goat Animal Feed

Soybean husk is a waste product from the rest of the tempeh-making process which is obtained through the process of boiling and soaking soybeans. Currently, soybean husks have not been fully utilized, there are still many peo-

Table 1. Comparison of the Use of Animal Feed Ingredients

No	Characteristics	Before being fed Addition	After being fed Addition
1	Growth	Slow Develop	Faster Develop
2	Weight	Thinner	Fatter than
3	Body endurance	Easy to Affect Disease	Stronger Against Disease
4	Appetite	Appetite Standard	Appetite Increase

ple who do not know the benefits of soybean husks. According to Lavine 1982 in Kristen 2011 it is said that soybean husk has a high nutritional content

high enough. Only 6-8% by weight of the seeds but contain about 32% of the total iron of soybeans as a whole. Seeing the high protein and energy content of soybean husks, soybean husks have considerable potential to be used as animal feed (Auza et al, 2017).

Soybean husks can be used as additional feed or as a substitute for all or part of the concentrate in stimulating the growth and development of goats. With the addition of feed, it can increase food consumption and immune endurance of livestock because soybean dregs or husks have high palatability for livestock (Handayanta, 2007). Provision of appropriate and quality feed can increase the potential for genetic superiority in livestock, which has an impact on increasing production yields to match the targets set by farmers. Good quality feed for livestock must meet several requirements, such as containing protein, carbohydrates, fats, vitamins, minerals and water.

In livestock, the addition of soybean husk in feed has a considerable effect. By consuming this additional feed, the quality of goat meat increases and can save the use of grass as the main ingredient for goat feed. In addition, this supplementary feed with soy epidermis can also help meet the nutrition of female goats who are breastfeeding their children because according to observations made by goat owners who consume additional soybean husk feed, they will produce milk.

Comparison of the Use of Animal Feed Ingredients

Animal feed ingredients are important to

determine the success of the livestock business. The selection of animal feed additives also affects the success of livestock management. Although the goat seeds used are superior seeds, if they are not balanced with proper and quality feeding, then these advantages will not have significant results. Provision of appropriate animal feed will increase production yields from livestock. This is also the same as the provision of animal feed additives, if the addition of additional materials is not done properly there will be differences from the livestock produced.

In the above explanation, it is stated that soybean husk has many benefits, especially as an additive to animal feed. According to Iriyani (2001), it is said that soybean husk has 17.98% crude protein, 5.5% crude fat, 24.84% crude fiber and 2898 kcal/kg metabolic energy. With the many benefits contained in soybean husk, there is a significant difference between livestock that is given soybean husk waste as a feed additive and livestock that is given grass alone. The provision of epidermis waste as an additive to animal feed affects the growth process and also the immune system of livestock. Based on the information from Mr. Sumirin as the manager of the Ranch Owned by the Village of Tandam Hulu I, it is said that livestock are given additional feed ingredients with:

Soybean husks will tend to develop faster than cattle that are only fed grass. The appetite and immune system of the livestock will increase further. Additional provision of animal feed with soybean aircraft waste hus will have a very positive impact on the farm it can be seen in the Table 1.

Conclusion

Soybean husk is a waste product from the rest of the tempeh-making process which is obtained through the process of boiling and soaking soybeans. Currently, soybean husks have not been fully utilized, there are still many people who do not know the benefits of soybean husks.

According to Lavine 1982 in Kristen 2011 it is said that soybean husk has a high nutritional content high enough. Only 6-8% by weight of the seeds but contain about 32% of the total iron of soybeans as a whole. Seeing the high protein and energy content of soybean husks, soybean husks have considerable potential to be used as animal feed.

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