



Identification of Breeder Factor Has Not Done Fermentation of Rice Straw as Cattle Feed

Sitti Nurani Sirajuddin¹, Ikrar Moh. Saleh¹, Sutomo Syawal², Syamsinar³

¹Department of Socio Economic, Faculty of Animal Science, Hasanuddin, University, Macassar, South Sulawesi, Indonesia

²Department of Livestock Production, Faculty of Animal Science, Hasanuddin, University, Macassar, South Sulawesi, Indonesia

³Department of Agribusiness, Faculty of Agriculture, Islamic University of Macassar, Macassar, South Sulawesi, Indonesia

ABSTRACT

This study aimed to identify the factor of breeders have not done fermentation of rice straw as cattle feed. This research was conducted on August-September 2017 in Patampanua village, Marioriawa sub-district, Soppeng district. This research is descriptive quantitative with Delbeq method. Data collection is qualitative and quantitative. Data sources are primary and secondary data. Data analysis used is frequency distribution. The results showed that farmers have not done the fermentation of rice straw as animal feed that is the motivation of farmers, intensity counseling and lack of knowledge of farmers

Keywords: breeder, fermented straw, feed, cow

HOW TO CITE THIS ARTICLE: Sitti Nurani Sirajuddin, Ikrar Moh.Saleh, Sutomo Syawal, Syamsinar , Identification of breeder factor has not done fermentation of rice straw as cattle feed, Entomol Appl Sci Lett, 2017, 4 (3): pp-12-15.

Corresponding author: Sitti Nurani Sirajuddin.

e-mail ✉

Received: 26/03/2017

Accepted: 09/08/2017

INTRODUCTION

Cattle ranching in an area can make optimal use of local resources and by-products such as rice straw from rice plants and the joint production of rice bran that can be utilized by cattle as cattle feed. Feed is a major component for the success of the cattle business [1]. According to Priyanto [2] the weakness that lay in the livestock production systems are not exactly feeding management. The nutrient content of forage depends on the composition of materials. Forage comes from native pasture, grasslands, improved pasture, legume-grass pasture and agricultural waste. The nutrient content of legume-grass pasture is 21%, grassland is 10, 20% [3] and agricultural waste content is 3.6%. Naturally, ruminants like cattle, buffalo, goat and sheep need grass and foliage as feed. Forage from native pasture and improved pasture the availability of which as forage is affected by season and while in the dry season is very

limited,necessitates that an effort to find alternative feed sources that are inexpensive,

economical, easy to obtain and do not compete with human need be made. Utilization of waste agricultural and plantation is choice the right to address the feed problems. The wet season is plentiful and yet the dry season has a limited stock of foliage so during the dry season, breeders mostly use agriculture waste like rice straw.Rice generates a relatively large amount of crop residue known as straw. These residues are the leftover vegetative parts after harvesting the grains. Rice straw is made up of panicle rachis, leaf blades, leaf sheath, and the stem. The average ratio of the rice grain to rice straw is 1:1.25 [4].Only about 20% of these straws are used for industrial (e.g., ethanol, paper, and fertilizer) and domestic (e.g., fodder) purposes [5]. Most of the remaining straws can be removed from the field, left undisturbed to serve as mulch, ploughed into the ground to add nutrients to the soil, or burnt. Burning of rice straw is the fastest mode of straw disposal but causes environmental pollution by increasing the amount of greenhouse gas into the air [6]. Rice straw is used as part of the nutritional

requirements of ruminant animals in most rice-producing countries [7]. However, low protein content, possession of phenolic properties, and high level of silica and lignin are the primary limiting factors in rice straw digestibility in ruminant animals [8].

To maintain the availability of feed especially during the dry season it is necessary to find alternative feed to substitute the field grass / HMT so that the nutritional intake of feed on the cattle is still guaranteed [9]. One alternative for the provision of cheap and competitive feed is through the utilization of waste both agricultural waste, livestock waste and industrial waste [10]. Rice straw is one of the agricultural wastes that quite a lot and not yet utilized. Production of rice straw can reach 12-15 tons per ha / one time harvest or 4-5 tons of dry material depending on the location and variety used [11]. The use of rice straw as fodder is constrained mainly due to the limiting factor with low nutritional value of low protein content, as well as high roughage and low digestibility. The low nutrient content of rice straw and the difficulty of digestibility of straw then in its utilization need to get treatment so that the nutrients increase. One way to increase the content of food substances is by processing rice straw through fermentation.

Soppeng Regency is one of the main rice-producing areas in South Sulawesi Province so that the amount of agricultural waste that is rice straw is very high as well as in the District of Mariorawa. However, people in the village of Patampanua, Mariorawa sub district still do not make the fermentation of rice straw as cattle feed so research needs to be done to identify the factors that cause farmers have not fermented rice straw as cattle feed.

2. RESEARCH METHODS

This research was conducted from July to August 2017 in Patampanua Village, Mariorawa Subdistrict, Soppeng Regency. The selection of this location is done purposively with consideration that in Desa Patampanua enough rice fields are planted with rice so that the amount of rice straw is also quite high and is the location of Science for Region (IbW). This type of research is a type of descriptive quantitative research that aims to describe the factors that cause farmers have not fermented rice straw as animal feed. Population in this research is all breeder cattle in the District Mariorawa, Soppeng District. Samples are farmers who have not fermented the rice straw as livestock feed, which is a member of the Tonrong group and

members of the Lapagiong group. The type of data is qualitative and quantitative. Sources of data used in this study are primary data and secondary data. Data collection method is by observation and interview by using questionnaire. Data analysis used in this research is descriptive analysis is explorative by using method of Delbeq.

3. RESULT AND DISCUSSION

3.1 Characteristic of Respondent

As the subject in the development of beef cattle breeding, the success of the effort depends crucially on the ability of farmers in managing it. Some important factors are seen in this study were age, education, experience farming, family size, scale of business

Table 1. Characteristics of Respondents Based on Frequency Distribution

No	Parameter	Number(people)	Percentage
1	Age		
	< 20	0	0
	21-55	25	83,3
	>55	5	16,7
2	Education		
	Finished primary school	16	53,4
	Finished junior high school	6	20
	Graduated from high school	7	23,3
	College	1	3,3
3	Long breeding (year)		
	2-10	14	46,7
	11-22	10	33,3
	23-33	4	13,3
	34-50	2	6,7
4	Scale enterprises		
	<2	10	33,3
	3-7	14	46,7
	>7	6	20

Source: Primary data, 2017

Table 1 shows that the age of farmers in Patampanua sub-district is mostly at productive level (83.3%). This is in accordance with Murwanto's opinion (2008) that the productive breeder's age usually has a dynamic mindset and excellent physical ability in handling the business

Farmers in the district of Patampanua are mostly educated at primary school (53.4%), with low level of education indicates that the level of education influences the acceptance of new innovations, this is in the opinion of Murwanto [12] that the level of education of farmers is an indicator of population quality and

is a variable key in the development of human resources. Adequate breeder education will facilitate the acceptance process of innovation and technology of beef cattle farming

The majority of respondents' livestock ownership experience is greater than 11 years (53.3%) and this has an effect on the management of beef cattle business, it is in accordance with Murwanto [12] that the experience of raising beef cattle is a very important role in determining the success of farmers in enhancing the development business of cattle and at the same time increase the income of farmers. Breeding experience is a good teacher, with the experience of raising more cattle farmers will be more careful in trying and can fix deficiencies in the past.

Business scale of beef cattle breeder in District of Patampanua on scale of 3-7%, with scale of ownership of beef cattle big enough will influence management of beef cattle business, this is in accordance with opinion of Murwanto (2008) that amount of beef cattle ownership is indicator of success cattle breeding business.

3.2. Factors Breeders have not Fermented Rice Straw as Animal Feed

To identify the beef breeder has not done the fermentation of rice straw as animal feed that is doing four stages:

The first stage is data retrieval using questionnaire using open and focused questionnaire format in the respondents given the freedom to write down the factors of breeders have not done the rice straw fermentation and the results are:

1. Education Level
2. Motivation
3. Intensity of Extension
4. Economic Factors
5. Experience making rice straw fermentation

In the second stage is to do ranking of respondents' answers and the results obtained are:

1. Intensity of extension
2. Level of education
3. Motivation
4. Experience making fermentation
5. Economic Factors

In the third stage of doing a large 3 ranking of respondents' answers and obtained results are:

1. Motivation
2. Intensity of Extension
3. Education Level

Furthermore, in the fourth stage is done ranking and obtained the same results with the third stage, namely:

1. Motivation
2. Intensity of Extension
3. Education Level

Motivation occupies the first rank, due to the motivation is divided into 2, namely the motivation of the self and the motivation of the environment. If breeders have a strong motivation from within and influenced also from the outside environment then the farmers will make the fermentation of rice straw as animal feed, this is in accordance with the opinion of Mardikanto [13] that motivation is the thing that pushes someone to something the business wants to know and also in accordance with the opinion of Subagiyo and Sekarningsih [14] that one of the internal factors of motivation is very influential on the adoption of innovation.

Furthermore the second factor is the intensity of counseling where the farmers only very little have followed the counseling about the making of rice straw fermentation as beef cattle feed so that the information obtained is also less, it is in accordance with the opinion Sumbayak [15] that the intensity of extension is very important in the process of technology adoption. The higher the frequency of counseling then the extension of agricultural extension delivered higher

And in the third rank indicates that low level of education also influences knowledge and also can be seen from breeder characteristic with highest education (53,3%) cause farmer not easy to adopt a technology, this is according to Soekartawi opinion [16] education can affect a farmer's ability to adopt a technology, the higher the level of education of farmers, then in understanding a technology will be easier

4. CONCLUSION

Cattle breeders in the district of Patamanua, Soppeng District Have not done the fermentation of rice straw as beef cattle feed caused by motivation factor, extension intensity factor and level of education

The intensity of counseling and motivation improvement for beef cattle farmers in Patampanua sub-district in making the fermentation of rice straw as animal feed can be improved in the sub-district can be improved so that the productivity of beef cattle can be increased

ACKNOWLEDMENT

To the Ministry of Research and Technology of Higher Education who has Provided the Grant of Science and Technology for the Region (IbW)

REFERENCES

- [1] Sirajuddin, S.N.A. Asnawi, S. Syawal, M. Jamal. 2016 "Response of cattle breeders to rice straw silage in Soppeng Regency, South Sulawesi Province." *American-Eurasian Journal of Sustainable Agriculture*, 10(3):33-36
- [2] Priyanto, D., 2008. Peranan usaha ternak kambing local sebagai penunjang perekonomian petani di pedesaan. *Prosiding Seminar Nasional Teknologi Peternakan dan Veteriner*. Bogor 17-18 September, pp 418-426 (in Indonesia)
- [3] Rukmana, R., 2005. Rumput Unggul Hijauan Makanan Ternak. Kanisius, Yogyakarta (in Indonesia)
- [4] Haefele, S.M., Y. Konboon, W. Wongboon et al., 2011. "Effects and fate of biochar from rice residues in rice-based systems," *Field Crops Research*, 121(3): 430-440. View at Publisher • View at Google Scholar • View at Scopus
- [5] Kadam, K.L., L.H. Forrest and W.A. Jacobson, 2000. "Rice straw as a lignocellulosic resource: collection, processing, transportation, and environmental aspects," *Biomass and Bioenergy*, 18(5): 369-389. View at Publisher • View at Google Scholar • View at Scopus
- [6] El-Gammal, M.I. and A.A. Shakour, 2001. "Emission of pollutants from harvest and burning of rice straw in Egypt villages (North East of Nile Delta)," *Journal Union Arab Biology*, 15: 191-206. View at Google Scholar
- [7] Dong, C.-F., Q.-S. Cai, C.-L. Wang, J. Harada, K. Nemoto and Y.-X. Shen, 2008. "QTL analysis for traits associated with feeding value of straw in rice (*Oryza sativa* L.)," *Rice Science*, 15(3): 195-200. View at Publisher • View at Google Scholar • View at Scopus
- [8] Van Soest, P.J., 2006. "Rice straw, the role of silica and treatments to improve quality," *Animal Feed Science and Technology*, 130(3-4): 137-171. View at Publisher • View at Google Scholar • View at Scopus
- [9] I.N. Sugama and N.L.G. Budiari. 2002. Pemanfaatan jerami padi sebagai pakan alternatif untuk sapi Bali dara. *Majalah Ilmiah Peternakan*: 15(1):21-25
- [10] Mastika, I.M. 1991. Potensi limbah pertanian dan industri pertanian serta pemanfaatannya untuk makanan ternak. Makalah pengukuhan guru besar ilmu makanan ternak pada fakultas peternakan UNUD-Denpasar
- [11] Yunilas. 2009. Karya Ilmiah. Bioteknologi Jerami Padi melalui Fermentasi sebagai Bahan Pakan Ternak ruminansia. Fakultas pertanian, Universitas Sumatera Utara, Medan
- [12] Murwanto, A.G. 2008. Karakteristik peternak dan tingkat masukan teknologi peternakan sapi potong di lembah Prafi, Kabupaten Manokwari. *Jurnal Ilmu Peternakan*. 3(1): 8-15
- [13] Mardikanto, T. 1993. Penyuluhan Pembangunan Pertanian. Universitas Negeri Sebelas Maret. Surakarta Press. Surakarta
- [14] Subagiyo, R dan Sekarningsih, R. 2005. Kajian faktor-faktor social yang berpengaruh terhadap adopsi inovasi usaha perikanan laut di Desa Pantai Selatan Kabupaten Bantul, DIY. *Pengkajian dan Pengembangan Teknologi Pertanian*. 8(2):1-7
- [15] Sumbayak, J.B. 2006. Materi, metode dan media penyuluhan. Fakultas Pertanian. Universitas Sumatera Utara, Medan
- [16] Soekartawi. 2005. Prinsip Dasar Komunikasi Pertanian. UI Press. Jakarta