



Gayo Buffalo Maintenance Management Viewed from the Technical Aspect of Maintenance in Gayo Lues Regency

(Manajemen pemeliharaan kerbau Gayo ditinjau dari aspek teknis pemeliharaan di Kabupaten Gayo Lues)

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ABSTRACT. Gayo Lues Regency, Aceh Province is a very potential area for the development of buffalo. This study aims to determine the application of technical aspects of buffalo breeding in Gayo Lues which is expected to be a reference for local governments regarding genetic quality improvement of Gayo buffalo conservation programs to maintain population growth of one of the national germplasms. This research was conducted in Gayo Lues Regency covering two sub-districts, Blangkejeren and Dabun Gelang. This study uses a qualitative method by conducting a simple random sampling survey of 54 buffalo farmers. The number of samples was determined by the Slovin formula, the criteria for breeders to maintain at least 5 buffaloes. The research data is processed by calculating the percentage and then compared with the standard by Minister of Agriculture Regulation (2006). The results showed that the score of the application of the technical aspects of keeping buffaloes obtained in Gayo Lues was 55.96% including the application of the technical aspects of breeding and reproduction 62.39%, food 41.47%, maintenance management 57.20%, health 61, 71% and housing 73.40%. It can be concluded that the implementation of technical aspects of buffalo maintenance in Gayo Lues Regency is still not good enough.

Keywords: breeding and feeding, buffalo population, maintenance management, technical aspects

ABSTRAK. Kabupaten Gayo Lues, Provinsi Aceh merupakan wilayah yang sangat potensial untuk pengembangan ternak kerbau. Penelitian ini bertujuan untuk mengetahui penerapan aspek teknis pemeliharaan ternak kerbau di Kabupaten Gayo Lues yang diharapkan bisa menjadi acuan pemerintah daerah mengenai peningkatan mutu genetik dan pengembangan program pelestarian kerbau Gayo secara berkelanjutan untuk menjaga keberlangsungan pertumbuhan populasi salah satu plasma nutfah nasional. Penelitian ini dilaksanakan di Kabupaten Gayo Lues meliputi dua kecamatan yaitu Blangkejeren dan Dabun Gelang. Penelitian ini menggunakan metode kualitatif dengan melakukan survei secara *simple random sampling* terhadap 54 peternak kerbau. Jumlah sampel ditentukan dengan rumus Slovin dan kriteria peternak memelihara minimal 5 ekor ternak kerbau. Data hasil penelitian diolah dengan menghitung persentase lalu dibandingkan dengan standar yang ditetapkan Peraturan Menteri Pertanian (2006). Hasil penelitian menunjukkan bahwa skor penerapan aspek teknis pemeliharaan ternak kerbau yang diperoleh di Kabupaten Gayo Lues adalah 55,96% diantaranya penerapan aspek teknis pemuliaan dan reproduksi 62,39%, makanan 41,47%, tatalaksana pemeliharaan 57,20%, kesehatan 61,71%, dan kandang dan peralatan 73,40%. Hal tersebut dapat disimpulkan bahwa penerapan aspek teknis pemeliharaan kerbau di Kabupaten Gayo Lues masih belum cukup baik.

Kata kunci: aspek teknis, manajemen pemeliharaan, pemuliaan dan makanan, populasi kerbau

INTRODUCTION

Indonesia is a country with abundant livestock genetic resources. In this case, Aceh is one of the provinces with the highest number of local animal genetic resources. It has four (4) local animal genetic resources, those are Aceh cattle, Gayo horses, Simeulue buffalo, and Gayo buffalo. According to the Decree of the Minister of Agriculture of the Republic of Indonesia Number 302/Kpts/SR.120/5/2017, Gayo Buffalo must be protected and preserved because it is maintained, farmed, and developed across generations with

historical and social values so that it unites with the Gayo society life.

Buffalo is large ruminant livestock which has the potential as a source of meat production. Buffalo (*Bubalus bubalis*) consumes low-quality food well, has faster growth, has higher fiber-rich feed digestibility, has better nitrogen use efficiency, is able to convert feed into more efficient energy, is able to consume more food, and has wider forage preferences when grazing. An adult buffalo weighs 300-600 kg. However, the weight of wild buffalo can have a higher weight, as in female wild buffalo which can reach 800 kg and male wild buffalo 1200 kg (Sariubang *et al.*, 2011). Feed is one of the factors in the successful livestock sustainability sector. Feed takes the highest role of 60-70% of the total production cost, particularly in ruminant livestock

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whose daily feed is forage of 10% of the animal's body weight. In addition, buffaloes also have weaknesses, which are low reproduction, limited superior seeds, frequent deep interbreeding, estrous is difficult to detect, and has longer pregnancy. Therefore, in order to improve the development of buffalo maintenance, buffalo productivity needs to be improved as well.

Previous research on the technical aspects of buffalo maintenance in Gayo Lues Regency has been carried out by Sari *et al.* (2012) and (2015), long before the issuance of the Decree of the Minister of Agriculture regarding the determination of the Gayo buffalo as local animal genetic resources was issued. On the other hand, the lack of public awareness on the importance of Gayo buffalo as a genetic resource for local livestock encourages this research to be carried out again to provide an overview of the changes and improvements in breeding, feeding and maintenance management, including stable, as well as disease prevention and treatment.

MATERIAL AND METHOD

Research Respondents

Research respondents were breeders who maintain buffaloes in Blangkejeren and Dabun Gelang Districts who have met the criteria. These criteria include that they have been breeding for at least 5 years and have at least 5 buffaloes. The number of samples involved were 54 farmers (23 farmers from Blangkejeren and 31 from Dabun Gelang). Furthermore, the sampling technique applied was using the Slovin formula in Umar (2001):

$$n = \frac{N}{1 + N \cdot e^2}$$

Description:

n = sample size

N = population size

e² = percentage of tolerable inaccuracy allowance due to sampling error is 0.10 (10%).

Blangkejeren District

$$(n = \frac{30}{1 + 30 (0,01)} = \frac{30}{1,3} = 23,07 = 23).$$

Research Period and Site

This research was carried out on 5 May to 3 June 2021 in Gayo Lues Regency, covering two districts of Blangkejeren and Dabun Gelang.

Data Collection

The data employed in the current research were from the calculation of the technical aspects

of livestock maintenance, referring to the guidance that has been issued by the Regulation of Minister of Agriculture (2006). This include the reproduction, livestock feed, livestock management, purpose of maintenance, and marketing, livestock health, and stable. In addition, secondary data were also used, obtained from the relevant agency/ institution as supporting data.

Data Analysis

In order to know the overall technical analysis implementation, the data were processed using the frequency table of average and percentage, referring to the "Guidance for Good Buffalo Seedlings" based on the Regulation of Minister of Agriculture (2006).

RESULTS AND DISCUSSION

Implementation of Technical Aspects of Breeding and Reproduction

Table 1. Implementation of technical aspects of local buffalo maintenance in Gayo Lues regency

Technical Aspects	Standard value	Average	Percentage
Breeding and reproduction	350	218.360	62.39
Feed	300	124.420	41.47
Maintenance management	175	100.103	57.20
Health	100	61.710	61.71
Stable and equipment	75	55.050	73.40
Total	1000	559.643	55.96

The implementation of the technical aspects of breeding and reproduction in Gayo Lues Regency obtained 62.39% (Table 1). This is because the breeders have started using local males and females. In addition, some of the breeders have also started to apply the artificial insemination (AI) process, have knowledge and experience, as well as have used superior male buffalo. Meanwhile, the remaining 37.61% of farmers have not implemented this because they are still breeding and maintaining the buffalo traditionally. Therefore, there was a decrease in the seed quality caused by inbreeding. According to Komariah *et al.* (2006), the main obstacle in breeding buffalo is inbreeding which causes a decrease in productivity due to a decrease in seed quality. On the other hand, there are high male sales in Gayo Lues Regency, so it is feared to lose the superior males.

Implementation of Feed Technical Aspect

The implementation of food technical aspects by buffalo farmers in Gayo Lues Regency is 121.42 (41.47%) (Table 1). The technical aspects of food and feeding is higher than that reported by Sari *et al.* (2012) of 54.18 (18.22%) and Sari *et al.* (2015) of 53.01 (17.67%). Farmers in Gayo Lues Regency provide forage (natural grass) by releasing their livestock because they think that the field grass is sufficient for livestock needs. However, there are some breeders who have started to plant dwarf elephant grass and provide concentrates for their livestock, especially those who live close to the district capital, so they plant grass intensively and manage the animal feed waste.

In addition to the forage used as animal feed, both by planting superior grass and releasing it to the pasture, farmers also use the supporting resources of waste feed which are often found in

the form of rice straw, corn straw, and citronella grass straw. The use of waste feed carried out by farmers in Gayo Lues Regency is mostly due to managing agriculture independently. This waste feeding is mostly found in Dabun Gelang district. Meanwhile, the farmers in Blangkejeren district mostly take forage to the meadow or called nuling in the Gayo language. For concentrate raw materials that are often used are rice bran and cassava in the form of pellets.

Another alternative that can be used as a solution when releasing buffalo is to apply rotational grazing according to the buffalo population and grazing area. According to Samadi *et al.* (2010) another alternative is to improve the quality of agricultural waste physically, chemically, and biologically, such as ammoniating rice straw with the addition of urea molasses block, especially in feed with high crude fiber.



Figure 1. The difference between superior grass (Dwarf Elephant Grass) and grazing land (natural grass)

Implementation of Technical Aspect of Maintenance Management

The maintenance aspect of buffalo in Gayo Lues Regency obtained value of 100.103 (57.20%) (Table 1). This is much better than what was reported by Sari *et al.* (2012) which was 67.31 (38.42%) and Sari *et al.* (2015) of 81.39 (46.50%). However, there are still breeders who do not pay attention to the cleanliness of their livestock because buffaloes generally like to wallow, so there is no attempt to bathe them, unless the cattle are wallowing on the banks of the river. On the other hand, at this time, farmers have started to use livestock manure for both biogas and fertilizer. According to Roidah (2013), the use of organic fertilizers is useful for preserving soil

and plant fertility, has economic value, increases productivity and farm income.

Implementation of Health Technical Aspect

The health aspect in maintaining buffalo in Gayo Lues Regency is 61.71%. The results of this study are higher than what Sari *et al.* (2012), reported which is 60.71%. However, the value obtained in this study is lower than those reported by Sari *et al.* (2015) which is 64.57%. Diseases that are often suffered by buffaloes are not much different from cows such as bloating, diarrhea, decreased appetite, and the most severe one is paralysis but this rarely occurs.

Most of the breeders have vaccinated their buffaloes but not routinely since most of them still

conduct traditional livestock medication using herbs. This situation is inseparable from the efforts of livestock extension officers and animal health officers, but they are constrained because the location of maintenance is far from residential areas. According to Ediset *et al.* (2013) the important role of extension workers and counseling is as educators, mentors, advisors, conducting continuous meetings, conducting training activities and forming groups.

Implementation of Technical Aspect of Stable and Equipment

The results of the technical application of the stable and equipment aspects obtained 55.05 (73.40%). This indicates that farmers in Gayo

Lues Regency have given full attention to the cleanliness of the stable and completeness of the equipment. This aspect is the highest among all aspects involved, because buffalo in Gayo Lues Regency are kept in mountainous areas far from human residential area. Therefore, they are very vulnerable to predators, if proper cages are not built. According to Aritonang *et al.* (2010) cages are very important for livestock business to avoid bad influences from the surrounding environment. On the other hand, good stable management can streamline feeding and supervision of disease prevention.



Figure 2. Stable in Blangkejeren District

Implementation of All Maintenance Technical Aspects

Based on Table 2, the highest implementation of maintenance technical aspects is in Dabun Gelang district (66.75%), while the lowest is in Blangkejeren district (58.02%). This is further followed by the food aspect, in which the highest was found in Blangkejeren district (42.36%) followed by Dabun Gelang district (40.6%). Furthermore, the highest maintenance management aspects were found in Dabun Gelang subdistrict (58.99%) and Blangkejeren district (55.41%). The highest health aspect was found in Dabun Gelang subdistrict (69.09%) and Blangkejeren district (66.33%). The last one is the application of the stable and equipment aspects, in which the highest was found in Dabun Gelang district (74.99%), then Blangkejeren district (71.8%).

According to Table 1, the stable aspect is the highest percentage of the implementation in Dabun Gelang district (74.99). This is because some breeders have made wooden and wire cages

which are quite good for buffaloes in the hills within the district area. Meanwhile, the aspect that has the lowest percentage of its implementation in Dabun Gelang subdistrict is food (40.6%). The reason is that most of the farmers have not carried out superior grass planting, food preservation, and concentrates provision. The provision of drinking water is also not carried out because farmers assumes that the field has provide sufficient food and drinking water.

The results obtained from this study are also better compared to the results obtained by Nurichlas (2018) in Akabirulu district, Lima Puluh Kota West Sumatra, with the results of technical aspects of buffalo maintenance, including the technical aspects of reproduction is 24.90%, feed is 36.66%, management is 55.00%, stable is 40.00% and health/disease is 15.00%. However, Ilham (2019) found different things, in which the technical aspects of seeds is 78.62%, feed is 53.25%, management is 50.50%, stable is 38.37%, and health is 24.56%.

The implementation of technical aspects of buffalo maintenance in Gayo Lues Regency is presented in Table 2. Based on the table, it can be seen that the average implementation of the technical aspects of maintenance by breeders is 55.96%. This percentage is not high enough due to various factors in this area, such as traditional methods of maintenance, although there are

already a small number of breeders who carried out semi-intensive maintenance and already have sufficient knowledge of animal husbandry in several villages in Blangkejeren district. However, the implementation of technical aspects to the results of this study is higher than the results of research conducted by Sari *et al.* (2012) (research) at 42.33% and Sari *et al.* (2015) at 40.16%.

Table 2. Implementation of maintenance technical aspects of local buffalo in Blangkejeren and Dabun Gelang districts

Technical Aspects	Standard value	Average		Percentage	
		Blangkejeren	Dabun Gelang	Blangkejeren	Dabun Gelang
Breeding and reproduction	350	203.085	233.640	58.02	66.75
Feed	300	127.070	121.770	42.36	40.60
Maintenance management	175	96.970	103.236	55.41	58.99
Health	100	66.330	69.090	66.33	69.09
Stable and equipment	75	53.850	56.250	71.80	74.99
Total	1000	547.300	583.980	293.92	310.42
Percentage	100	54.730	58.400	29.39	31.04

CONCLUSION

Based on the results obtained, the conclusion obtained is that the implementation of technical aspects of maintenance by breeders in Gayo Lues Regency is generally still below the standard established by the Regulation of the Minister of Agriculture (2006). This is because the breeding and reproduction of buffaloes is still done naturally and most of the feeding is still done traditionally, which is by releasing the livestock into wild grasslands. However, the buffalo stage has met the requirements, both based on the materials used and the conditions that are suitable for occupancy.

SUGGESTION

The suggestion that can be provided by the current research is that government needs to provide counseling so that local livestock genetics can be developed better (there is no genetic extinction of these local livestock) and the knowledge about good feed can be improved so that farmers understand the nutrition for their livestock.

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