Reproduction characteristics of Simeulue Buffalo in Alafan district in Simeulue Island

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Abstract. The purpose of this study was to identify the female buffalo reproductive characteristics in Alafan district of Simeulue Regency in Simeulue Island. This research used survey method in four villages within Alafan district, namely: Lafakha, Lubuk Baik, Lewak, and Langi. Fourty respondents of buffalo breeders we selected based on purposive sampling method, with the minimum requirement of breeder keep two productive buffalos which have been given birth twice and breeder have experience more than one year. Data collection done by interview and was discussion techniques. The parameters observed were: (a) conception period; (b) the age of buffalo have the first child; (c) calving intervals; and (d) service period. The data obtained processed and calculated averaged and then descended and described descriptively. The results showed that the female buffalo reproductive characteristics in Alafan district of Simeulue Regency in Simeulue Island was good enough. The conception period was 10.46 months, the age of buffalo have the first child at 3.8 years (45.6 months), calving interval was 17.3 months, and service period was 7.5 months.

1. Introduction

Simeulue buffalo is one of animal genetic resources of Aceh Province. Habitually, Simeulue buffalo consists of mountain buffalo and coastal buffalo, but there is no data that reveals the difference in genetic or chromosome number. Although its reproductive biology is basically similar to that of cattle, there are important differences and unique characteristics that need to be considered in order to apply modern reproductive technologies to improve its productivity. The major reproductive problems affecting buffaloes are mainly as late maturity, long postpartum anoestrous intervals, poor expression of oestrus, poor conception rates (CR) and long calving intervals. According to Gordon [1], the main cause of poor reproductive performance in buffalo is the weak signs of lust and decreased buffalo libido in the summer. Fahimuddin [2] states that the swamp buffalo found in swampy areas or in areas with many swamps are like in Thailand, Malaysia, Indonesia and the Philippines. Swamp buffalo has characteristics flat forehead, short face with a wide muzzel. His neck is long and has a solid body short and slender legs. High shoulder swamp buffalo females while males range from 129-133 cm and 120-127 cm. Swamp buffalo has a color ranging from white or albinoid, striped, light gray to dark gray. Swamp buffalo skin color is generally grayish. Horns, nails and hair are usually the same color as the skin but tend to be dark or commonly described as a dark gray [3].

The buffalo has been traditionally regarded as a poor breeder due to having poor fertility in the majority of conditions under which they are raised [4,5]. This is manifested mainly as late maturity, long postpartum anoestrous intervals, poor expression of oestrus, poor conception rates (CR) and long
calving intervals. However, studies in Sri Lanka [6], Pakistan [7] and Brazil [8] show that fertility can be highly acceptable, provided genotypes are matched to the environment and the animals are managed and fed properly. Reproduction data of Simeulue buffalo is not yet available and is not well documented. Even though the data is very necessary in efforts to purify and develop Simeulue buffalo on Simelue island. Therefore, this research was conducted in an effort to preserve the existence of Simeulue buffalo.

2. Materials and methods
The research method used was survey method through direct interview with buffalo owner based on questionnaire. The selection of the location of this study was done purposively (purposive sampling) with consideration of districts that have the largest buffalo populatin in Alafan district. Parameters observed were: (a) conception period (b) the age of buffalo have the first child; (c) calving intervals; (d) service period. The collected data is analyzed by using frequency table and percentage. The data obtained is processed and calculated averaged and then descended and described descriptively.

3. Results and discussion

3.1. Conception period
Conception period is the period when there is a conception (fertilization) in the buffalo to give birth (partus). The conception period of Simeulue buffaloes in Alafan district is shown in table 1.

| No. | Village | Buffalo | Conception Period (days) |
|-----|---------|---------|--------------------------|
| 1   | Lafakha | 45      | 317                      |
| 2   | Lubuk Baik | 49      | 308                      |
| 3   | Lewak   | 51      | 309                      |
| 4   | Langi   | 38      | 322                      |
|     | Total   | 183     | 1256                     |

Conception period in Simeulue buffaloes in Alafan district is 314 days or 10.46 months. Toelihere [9] state that swamp buffaloes in Indonesia have a conception period between 310-315 days and buffalo in India for 314 days, this study have a same as conception period in India buffalo. Lendhani [10] states that the conception period of the swamp buffalo in Sapala village is 12 months, while Fischer and Bodhipaksha [11] reported the conception period in river buffaloes is 330 days. Conception period can be caused by management, feed and environmental climate. The results of this study are different from Suryana [12] who state that conception period swamp buffalo in South Kalimantan is 11-12 months while Bhattacharya et al. [13] state that the conception period of buffaloes is 10.5 months.

3.2. The age of buffalo have a first child
Table 2. shows the age of Simeulue buffalo have the first child in Alafan district. The average age of the Simeulue buffalo have a first child in Alafan district is 3.8 years or 45.6 months with the lowest age in the village of Langi is 3.7 years or 44.4 months.

The age of Simeulue buffalo have a first child in Alafan district ranged from 44.4 months to 46.8 months, this result is greater than the age of buffalo have the first child in Malang and Kampar regency (3.5 or 42 months) [14]. According to Usri [15] the age of buffalo have a first child in Philippines is 3.6 years.
Table 2. The age of Simeulue buffalo have the first child in Alafan district

| No. | Village | Buffalo (head) | The age of Simeulue buffalo have a first child (months) |
|-----|---------|----------------|--------------------------------------------------------|
| 1   | Lafakha | 45             | 46.8                                                   |
| 2   | Lubuk Baik | 49         | 45.8                                                   |
| 3   | Lewak | 51             | 45.8                                                   |
| 4   | Langi | 38             | 44.4                                                   |
|     | Total  | 183            | 182.8                                                  |
|     | Average| 45.6           |                                                        |

3.3. Calving interval
Calving interval is the distance between the birth of a child and the next birth. The first lust after giving birth and the conception period in buffalo is the thing that determines the calving interval. Calving interval of Simeulue buffalo in Alafan district is in table 3. Simeulue buffaloes in Alafan district have calving interval 17.3 months with range of 16.4 months – 18.1 months.

Table 3. Calving interval of Simeulue buffalo in Alafan district

| No | Village | Buffalo (head) | Calving Interval (months) |
|----|---------|----------------|---------------------------|
| 1  | Lafakha | 45             | 18.1                      |
| 2  | Lubuk Baik | 49         | 16.8                      |
| 3  | Lewak | 51             | 17.9                      |
| 4  | Langi | 38             | 16.4                      |
|     | Total  | 183            | 69.2                      |
|     | Average| 17.3           |                           |

According to [10, 16], calving interval of swamp buffaloes are 18-24 month. Whereas Keman [17] reported that calving interval in swamp buffalo ranged from 21.3 months.

3.4. Service period
Based on the results of research, Simeulue buffalo in Alafan district can be classified as a very fertile buffalo. The age of buffalo have the first child was 45.6 months with service period was 7.5 months, and conception period was 10.4 months, so that the period of empty in just a relatively short time.

Table 4. Service Period of Simeulue buffalo in Alafan district

| No | Village | Buffalo (head) | Service period (months) |
|----|---------|----------------|-------------------------|
| 1  | Lafakha | 45             | 7.4                     |
| 2  | Lubuk Baik | 49         | 7.3                     |
| 3  | Lewak | 51             | 7.2                     |
| 4  | Langi | 38             | 8.1                     |
|     | Total  | 183            | 30                      |
|     | Average| 7.5            |                         |

4. Conclusions
Characteristics of Simeulue buffalo reproduction in Alafan District, Simeulue Island is good. The age of the buffalo have the first child at the age of 3.8 years (45.6 months), conception period is 10.4 months, calving interval 17.3 months, and service period is 7.5 months. To improve the knowledge of
breeders about the reproduction of buffaloes in Alafan district in Simeulue Island, the government should provide counseling to buffalo breeders and provide buffalo superior to improve the genetic quality of buffalo in Alafan district in Simeulue Island.

References
[1] Gordon I 1996 Controlled Reproduction in Cattle and Buffalo. (CAB International) p. 438.
[2] Fahimuddin M 1975 Domestic Water Buffalo (New Delhi: Oxford and IBH Publishing Co)
[3] Cockrill W R 1974 The Husbandry and Health of the Domestic Buffalo (Rome: Food and Agriculture Organization)
[4] Jainudeen M R, Hafez E S E 1993 Cattle and buffalo In: Hafez E S E (Ed.), Reproduction in Farm Animals 6th ed (Philadelphia, USA: Lea and Febiger) pp. 315–329.
[5] Barile V L 2005 Review article: improving reproductive efficiency in female buffaloes Livest. Prod. Sci. 92 183–194.
[6] Perera B M A O 1987 A review of experiences with oestrous synchronisation in buffaloes in Sri Lanka. Buffalo J. 1 (Suppl.), 105–114
[7] Usmani R H, Dailey R A and Inskeep E K 1990 Effects of limited suckling and varying prepartum nutrition on postpartum reproductive traits of milked buffaloes J. Dairy Sci. 73, 1564–1570.
[8] Vale W G 1996 The buffalo production in the Amazon valley In: International Symposium on Buffalo Products, EAAP Publication No. 82. Wageningen Press, Wageningen, the Netherlands, pp. 99–116.
[9] Toelihere M R 2006 Ilmu Kebidanan pada Ternak Sapi dan Kerbau (Jakarta: Penerbit Universitas Indonesia UI-Press)
[10] Lendhanie UU 2005 Karakteristik reproduksi kerbau rawa dalam kondisi lingkungan peternakan rakyat J Bioscientiae 43 – 48.
[11] Fischer H and P Bodhipaksha 1992 Reproduction in swamp buffaloes JHG.(eds.). 1st ed. (Amsterdam, Netherland: Elsiever Science Publisher
[12] Suryana 2007 Usaha Pengembangan Kerbau rawa di Kalimantan Selatan Jurnal Litbang Pertanian Balai Pengkajian Teknologi Pertanian, Kalimantan Selatan.
[13] Bhattacharya, Wiliamson W G A dan W J A 1993 Pengantar Peternakan di Daerah Tropis. (Yogyakarta: Gadjah Mada University Press)
[14] Yendraliza 2010 Karakteristik Reproduksi Kerbau Lumpur (Swamp Buffalo) Betina Di Kabupaten Kampar Seminar nasional Teknologi Peternakan dan Veteriner 2010.
[15] Usri N 1994 Reproduksi Kerbau Lumpur Betina Bulletin PPSKI, No. 43 Tahun IX April-Juni, hlm. 23.
[16] Dwiyanto K dan H Handiwirawan 2006 Strategi pengembangan ternak kerbau: Aspek penjaringan dan distribusi Prosiding Lokakarya Nasional Usaha Ternak Kerbau Mendukung Program Kecukupan Daging Sapi (Bogor: Pusat Penelitian dan Pengembangan Peternakan)
[17] Keman S 2006 Reproduksi Ternak Kerbau Menyongsong Rencana Kecukupan Daging Tahun 2010 Prosidong Orasi dan Seminar Pelepasan Dosen Purna Tugas 2006. (Yogyakarta: Fakultas Peternakan, Universitas Gajah Mada)