

AN INTRODUCTION STUDY ON CHARACTERISTIC OF BODY LENGTH, WITHERS HEIGHT, AND BODY WEIGHT OF MURRAH FEMALE BUFFALO IN DELI SERDANG AND SERDANG BEDAGAI COUNTY, NORTH SUMATRA PROVINCE

Willyan Djaja

Faculty of Animal Husbandry, Padjadjaran University, Bandung, Indonesia
e-mail: willyandjaja_rusli@yahoo.com

Abstract

The research was conducted in Deli Serdang and Serdang Bedagai County, North Sumatra province, Indonesia. The macro and micro environment have an effect on the growth of the animals maintained. The research objective was to analyze the body length, heart girth, withers height, and body weight of Murrah female buffalo which it was divided into caracalf, caraheifer, and caracow. The sample of caracalves, caraheifers, and caracows are respectively 21, 16, and 59 heads. The research used the survey and random sampling method and was descriptively analyzed and compared to the literature.

The research gave result as followed. The female Murrah caracalf shows the body length 80.1 ± 7.66 cm, heart girth 100.11 ± 8.71 cm, withers height 89.98 ± 11.54 cm, and body weight 104.63 ± 38.55 kg. The Murrah female caraheifer shows the body length 127.50 ± 9.49 cm, heart girth 166.84 ± 17.67 cm, withers height 121.65 ± 6.62 cm, and body weight 343.06 ± 47.74 kg. The Murrah caracow shows the body length 147.98 ± 8.98 cm, heart girth 205.35 ± 8.33 cm, withers height 135.06 ± 4.50 cm, and body weight 446.05 ± 45.06 kg. The research concludes that the body length, heart girth, withers height, and body weight of Murrah female buffalo are relatively not different compared to the literature.

Key words: Murrah buffalo, female, body length, heart girth, withers height, body weight

INTRODUCTION

The buffalo is very suitable to live in the swamps and the areas of high rainfall and all so the water buffalo is able to survive in a rather dry area. In other words, the water buffalo is able to live in the worst to the best environments. The water buffalo is more able to take the advantage of more poor feed quality, because the water buffalo is more efficient to digest the dry matter and cellulose of feed rather than the cattle. On the other hand, the water buffalo can easily adapt to the treatment of goof and profitable production. The feed is digested to produce the meat, milk, and energy. The water buffalo production is directly and indirectly affected by the environment, both of micro and macro. In the addition to the usage of the production the water buffalo is included in the traditional ceremonies. The water buffalo

is the most popular animal maintained the farmers especially the small scale farmers in the village, because it has a several advantage compared to other livestock such as the cattle.

In Indonesia the water buffalo as a milk producer has been long enough known by the civil society of Aceh, North Sumatra, Celebes, and Timor. The currently development of dairy buffalo in Indonesia except in North Sumatra is clearly unknown. The dairy or river buffalo bred Murrah is only known in North Sumatra and the Murrah breed is maintained for example on the Deli Serdang and Serdang Bedagai county. The Murrah buffalo is maintained and reproduced by the farmers without any attention from the other side. The farmers traditionally treat their water buffaloes based on the experiences they get for generations.

Due to the lack of the third side intervention the empiric data of Murrah buffalo in Indonesia particularly on North Sumatra is lost. The empiric data include for example the body length, heart girth, withers height, and body weight. The data mainly from the female buffalo is required for further management.

The description above shows that there is a good attention to investigate the Murrah performance analyzing the body size data. The question is what the difference between the Murrah buffalo in Indonesia and other places. Based on the analysis the research is conducted and a suggestion the Murrah buffalo in North Sumatra on Deli Serdang and Serdang Bedagai could be good managed in furthermore.

Experimental procedure

The research used the survey method and the technique of stratified random sampling method. The number of samples taken from the caracalves, caraheifers, and caracows are respectively 21, 16, and 59 heads. There is no record of the animal age. So, the farmers are interviewed and the animals are checked. The caracalves observed are before weaning age. The caraheifers are around a year of age and the caracows age 3.5 years or more.

The variables observed are the body length, heart girth, withers height, and body weight. The body length, heart girth, and withers height are measured using the stick and tape. The body weight was calculated using the equation $Y = 5.03 X - 298.27$ (Murti, 2002). Y is the body weight and X is the body length. The data collected are descriptively analyzed and compared to the references.

RESULTS AND DISCUSSIONS

1. Body Length

The body length of caracalf, caraheifer, and caracow of Murrah female buffalo were observed in Deli Serdang and Serdang Bedagai county and the data are shown in Table 1 below.

Table 1. The body length of caracalf, caraheifer, and caracow in Deli Serdang and Serdang

Maintenance	Body length		
	Lowest	Highest	Mean
	----- cm -----		
Caracalf	67.00	97.00	80.10±7.66
Caraheifer	110.00	146.00	127.50±9.49
Caracow	122.50	167.00	147.98±8.96

The first element that determinates the body weight and size is the body length. Table 1 above shows that the body length increases according to the age. The soma cells develop along the growing period and it is followed by the heart girth. According to Brainyquote (2010), the growth occurred in all of the parts of the body and the growth simultaneously, even, and gradually runs well. So, the body size increases. Mason (1974a) observed and got the result that the body length of Murrah caracow was 151 cm. According to Fahimuddin (1975), the body length of Murrah caracow was 149.8 cm. IGCARL (2008) stated, the body length of Murrah caracow was 148.6 cm.

2. Heart Girth

The collected data of the heart girth of caracalf, caraheifer, and caracow are shown in Table 2.

Table 2. The Heart Girth Tape of Caracalf, Caraheifer, and Caracow in Deli Serdang and Serdang Bedagai County

Maintenance	Heart girth		
	Lowest	Highest	Mean
	----- cm -----		
Caracalf	86.00	118.50	100.11±8.71
Caraheifer	144.00	213.00	166.84±17.67
Caracow	188.00	231.00	205.25±8.33

The heart girth accords to the increasing rate of age. There is a fact that it looks like the body length. Mason (1974a) reported that the heart girth of Murrah caracow was 223 cm. According to Fahimuddin (1975), the heart girth of Murrah caracow was 218.4 cm

3. Withers Height

The large animal has also a high withers. The withers height of caracalf, caraheifer, and caracow data are shown in Table 3.

Table 3. The Withers Height of Caracalf, Caraheifer, and Caracow in Deli Serdang and Serdang Bedagai County

Maintenance	Withers height		
	Lowest	Highest	Mean
	----- cm -----		
Caracalf	76.00	130.00	89.09±11.54
Caraheifer	112.00	137.00	121.65±6.62
Caracow	122.50	144.00	135.06±4.50

Mason (1974a) measured the withers height of Murrah caracow. It was 142 cm of height. Fahimuddin (1975) reported that the withers height of Murrah caracow was 132.1 cm. According to IGCARL (2008), the withers height of Murrah cara cow was 132 cm.

1. Body Weight

The body length and heart girth are the components to calculate the body weight using the equation $Y = 5.03 X - 298.27$ (Murti, 2002) which it only uses the body length and not using the heart girth for the determination the body weight. The body weight of the three groups of Murrah female buffalo are shown in Table 4.

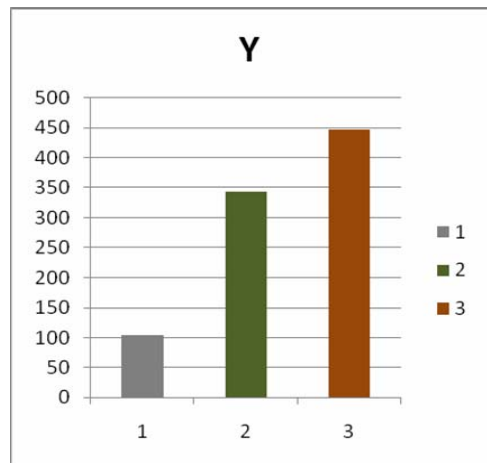
Table 4. The Body Weight of Caracalf, Caraheifer, and Caracow in Deli Serdang and Serdang Bedagai County

Maintenance	Body weight		
	Lowest	Highest	Mean
	----- kg -----		
Caracalf	38.74	189.64	104.63±38.55
Caraheifer	255.03	436.11	343.06±47.74
Caracow	317.91	541.74	446.05±45.06

Table 4 shows that the body weight of Murrah female buffalo increased following the increment of age and the fact is similar to the body length in Table 1. The linkage between Tables 1 and 4 is so the body gets longer and then the live weight gets more severe. On the growth period with the balance ration the body builds cells resulting in increased body weight. The fact is in accordance to Brody (1945) who states that growth causes the body weight. According to Brainyquote (2010), growth is the gradual increasing body until it reaches its maturity and including in the phenomena is the increasing of body size. Mason (1974b)

reported that the live weight of caracalf aged 4 weeks is average 48.2 kg. Mason (1974a) deriving from Smith (1928) reported that the Murrah caracow could reach the live weight around 350-700 kg even the good female buffalo reached 900 kg of live weight. Fahimuddin (1975) stated that was the average body weight of Murrah caracow was 430.9 kg. According to Dahiya (2010), the live weight of Murrah caracow is 450 kg.

Based on Table 4 the weight of the caracalf, caraheifer, and caracow of Murrah buffalo is shown in Figure 1 below.



Y = Body weight; 1 = Caracalf; 2 = Caraheifer; 3 = Caracow

Figure 1. The Body Weight of Murrah Buffalo in Three Periods of Maintenance

Figure 1 shows the growth of Murrah buffaloes in Deli Serdang and Serdang Bedagai. These results can be regarded as preliminary results, because more detailed and accurate research will give a good result.

CONCLUSIONS

Based on the result and discussion it is found out that there is relatively no difference on caracalf (body length 80.10±7.66 cm, heart girth 100.11±8.71, withers height 89.98±11.54, and body weight 104.63±38.55 kg), caraheifer (body length 127.50±9.49, heart girth 166.84±17.67, withers height 121.65±6.62, and body weight 343.06±47.74 kg), and caracow body size (body length 147.98±8.98 cm, heart girth

205.35±8.33 cm, withers height 135.06±4.50 cm, and body weight 446.05±45.06 kg) of Murrah female buffalo in North Sumatra compared to the references. It is recommended to use the water buffalo produces above the average and suggested to introduce a new genes for improvement the genetic value of Murrah buffalo in North Sumatra.

ACKNOWLEDGEMENTS

Thanks and highest appreciation are presented to Erlikasna br Ginting and Melda Canseria br Bangun who have shown the willingness to realize the idea.

REFERENCES

- [1] Brainyquote. 2010. <http://www.brainyquote.com.words/gr/growth170787.html>. Downloaded on December 20th, 2010 at 10.00 oclock.
- [2] Brody, S. 1945. Bioenergetics and Growth. Rheinhold Book Cooperation. New York.

- [3] Dahiya, K.L. 2010. Murrah. <http://www.ansi.okstate.edu/breeds/other/buffalo/murrah/index.htm>. Downloaded on December 20th, 2010 at 10.10 oclock.
- [4] Fahimuddin, M. 1975. Domestic Water Buffalo. Oxford & IBH Publishing Co., New Delhi, Bombay, Calcutta.
- [5] Indira Gandhi Centre for Advanced Research on Livestock/IGCARL. 2008. <http://ahfd.ap.nic.in/igcarl/murrah.htm>. Downloaded on December 18th, 2010 at 21.00 oclock.
- [6] Mason, I.L. 1974a. Species, Types, and Breeds. in the Husbandry and Health of the Domestic Buffalo. Cockrill.W.R. editor. Food and Agriculture Organization of The United Nations. Rome.
- [7] -----, 1974b. Genetics. in the Husbandry and Health of the Domestic Buffalo. Cockrill.W.R. editor. Food and Agriculture Organization of The United Nations. Rome.
- [8] Murti, T.W. 2002. Ilmu Ternak Kerbau. Kanisius.Yogyakarta.