

Biometry of female genitalia of Murrah buffalo (*Bubalus bubalis*)

S. KUMAR^{1†}, F.A. AHMED² AND M.S. BHADWAL³

Division of Animal Reproduction, Gynaecology & Obstetrics
F.V.Sc. & A.H., SKUAST, R.S. Pura, Jammu - 181 102

Received : June 26, 2003

Accepted : November 18, 2003

ABSTRACT

Biometrical study of buffalo revealed the mean length, breadth and thickness of the left ovary to be 2.35 ± 0.08 , 1.90 ± 0.05 and 1.54 ± 0.06 cm and that of the right ovary as 2.13 ± 0.08 , 1.68 ± 0.08 and 1.43 ± 0.04 cm, respectively. The average length and breadth of the left oviduct was 23.28 ± 0.58 and 0.20 ± 0.00 cm, and that of the right oviduct was 23.10 ± 0.05 and 0.20 ± 0.06 cm, respectively. Length, breadth and thickness of the left uterine horn was 39.25 ± 1.73 , 1.78 ± 0.06 and 0.84 ± 0.05 cm and that for the right horn was 38.65 ± 1.41 , 1.69 ± 0.07 and 0.84 ± 0.04 cm, respectively. Length, breadth and thickness of the corpus luteum measured 5.28 ± 0.19 , 1.89 ± 0.09 and 1.10 ± 0.05 cm, respectively and that for the cervix was 6.11 ± 0.30 , 1.93 ± 0.07 and 1.46 ± 0.07 cm, respectively. In case of paired organs the dimensions of the left side were found to be slightly higher than the right side.

Key words : Biometry, female genitalia, Murrah buffalo

Efficiency of reproduction is the basis of economic livestock production. Reproduction is influenced by the health status of the animals and health status in turn depends on the level of nutrition, managerial practices and endocrinological profile of the animals. The biometry of genital tracts of the female reveals the overall well being of the animals. Moreover the knowledge of the biometry of genital tract is necessary in artificial breeding operations and in diagnosis of infertility and its treatment. The literature on biometry of various buffalo breeds is scanty though efforts have been made in this regard [Bhalla *et al.* (1964) and Sane *et al.* (1965) in buffaloes; Deshpande and Velhankar (1994) in cows; Singh *et al.* (1974), Srivastava *et al.* (1984), and Ijapure *et al.* (1999) in goats, Das *et al.* (1988) in pigs].

Twenty (20) numbers of female genital organs of adult Murrah buffalo were collected from the slaughter house of Saharanpur. The genital organs were collected just after slaughter of the animals and were carried to the laboratory in ice box within 12 hours. Normal genital organs with no abnormalities or pathological lesions alone were considered for biometrical studies. Prior to taking measurements, extraneous tissues and fats were removed. The organs were spread in the natural position on a stainless steel table and

measurements were taken as described by Bhalla *et al.* (1964). Measurements were made in centimeter (cm). Dimensions less than 12 cm were made by means of vernier calliper and above 12 cm with the help of a thread and later adjusted on a centimeter scale.

1. **Cervix** : Length : Distance from external os to the internal os; Width : External diameter at the middle; Thickness : Thickness of mid-cervical wall after dissecting open the cervica canal.

2. **Corpus uterus** : Length : Distance from internal cervix opening to the internal bifurcation of the cornua; Width : External diameter at the middle portion; Thickness : Actual thickness of the wall at the middle portion of corpus uterus excluding or including caruncles.

3. **Uterine cornua** : Length : Distance from the internal bifurcation of the horns to their apices (both left and right) along the mid dorsum; Width : Measurement of the external diameter at the pseudo bifurcation (external) of the horns; Thickness : Measurement of actual thickness of wall at the external bifurcation of horns.

4. **Fallopian tube** : Length : Distance from the utero-tubal junction to the ostium abdominale; Width : External diameter at the middle.

5. **Ovaries** : Length : Distance from the anterior to the posterior end of the ovary; Width : Greater distance from the

^{1&2} Asstt. Professors

³ Assoc. Professor, Division of Veterinary Clinics & Teaching Hospital

[†]Corresponding author

medial to the lateral border; Thickness : Distance from the attached to the free border.

In case of ovaries all the measurements were taken with intact corpora lutea and paired organs were measured separately.

The average measurements of different parts of genital tract of buffaloes are presented in Table 1.

The mean length, breadth and thickness of the left ovary were found to be 2.35 ± 0.08 ; 1.99 ± 0.05 and 1.54 ± 0.06 cm, respectively, and that of the right ovary was found to be 2.19 ± 0.08 ; 1.68 ± 0.08 and 1.43 ± 0.04 cm, respectively. The left ovary measured slightly more than right ovary in buffaloes. The present finding is similar to that of Bhalla *et al.* (1964) and Sane *et al.* (1965) in buffaloes.

In the present study, the average length and breadth of the left oviduct was measured in 23.28 ± 0.58 and 0.20 ± 0.00 cm and that of the right oviduct was 23.10 ± 0.65 and 0.20 ± 0.00

cm, respectively. Bhalla *et al.* (1964) recorded length and breadth for left oviduct to be 23.80 and 0.29 cm and that of the right oviduct as 23.90 and 0.29 cm, respectively. Sane *et al.* (1965) found length and breadth of left oviduct to be 24.49 and 0.20 cm and that of the right oviduct as 24.41 and 0.20 cm, respectively. The findings of these authors are similar to the findings in the present study. The average length, breadth and thickness of the uterine cornua were measured to be 39.25 ± 1.73 , 1.78 ± 0.06 and 0.84 ± 0.05 cm and that of the right cornua was 38.65 ± 1.41 , 1.69 ± 0.07 and 0.84 ± 0.04 cm, respectively. Sane *et al.* (1965) recorded length and breadth of the left cornua as 38.75 and 2.62 cm and that of the right cornua as 39.13 and 2.80 cm, respectively. The mean length, breadth and thickness of the Corpus uterus was measured to be 5.28 ± 0.19 , 1.89 ± 1.22 , 2.88 and 0.95 cm, respectively. The mean length, breadth and thickness of the cervix in the present study was measured to be 6.11 ± 0.30 , 1.93 ± 0.07 and 1.46 ± 0.07 cm, respectively. Bhalla *et al.* (1964) recorded

Table 1. Measurements of different parts of genitalia of buffaloes (cm) (n = 20)

Parts of genitalia		Mean \pm SE (n=20)	Maximum	Minimum	
Ovary	Left	Length	2.35 ± 0.08	3.20	1.90
		Breadth	1.90 ± 0.05	2.50	1.60
		Thickness	1.54 ± 0.06	2.30	1.20
	Right	Length	2.13 ± 0.08	2.70	1.30
		Breadth	1.68 ± 0.08	2.30	1.30
		Thickness	1.43 ± 0.04	2.30	1.30
Oviduct	Left	Length	23.28 ± 0.38	30.00	18.00
		Width	0.20 ± 0.00	0.20	0.20
	Right	Length	23.10 ± 0.65	31.00	18.00
		Width	0.20 ± 0.00	0.20	0.20
Uterine cornua	Left	Length	39.25 ± 1.73	51.00	23.90
		Width	1.78 ± 0.06	2.30	1.30
		Thickness	0.84 ± 0.05	1.30	0.60
	Right	Length	38.65 ± 1.41	49.00	26.00
		Width	1.69 ± 0.07	2.10	1.10
		Thickness	0.84 ± 0.04	1.20	0.50
Corpus Uterus	Length	5.28 ± 0.19	7.50	4.00	
	Breadth	1.89 ± 0.09	2.50	1.40	
	Thickness	1.10 ± 0.05	1.60	0.70	
Cervix	Length	6.11 ± 0.30	9.00	4.00	
	Breadth	1.93 ± 0.07	2.50	1.50	
	Thickness	1.46 ± 0.07	1.90	0.50	

length, breadth and thickness of the cervix in buffalo as 5.51, 3.16 and 1.32 cm, respectively. Sane *et al.* (1965) measured the length and breadth as 8.09 and 2.95 cm, respectively.

The present study revealed that in all the paired structures, the left side has a slightly higher value than right side. Insignificant variation in the average dimensions of the parts of the female genitalia in the present study with the earlier reports can be attributed to the difference in breeds, age, parity and reproductive status at the time of slaughter.





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