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## Biometrical Studies of Reproductive Organs of Thari Cow

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**Abstract:** Out of fifty female genital organs of adult Thari cows collected from Mirpurkhas slaughter-house nineteen (38%) tracts were found apparently normal with no any macroscopic abnormalities and were used for biometrical studies of different parts of the tract. The mean length of vulva, vagina, cervix and corpus uterus was recorded as 10.24, 20.67, 7.80 and 1.7 cm, respectively. Corresponding values for the width were 8.94, 5.08, 2.72 and 2.17 cm, respectively. The mean length of right uterine horn was 21.63 and that of left horn it was 20.90 cm. The mean length of right and left oviduct was 21.78 and 21.31 cm, respectively. The mean length, width and thickness of right ovary was 2.56, 1.33 and 1.46 cm and that of left it was 2.50, 1.3 and 1.4 cm, respectively. The weight of right ovary was 3.83 g and that of left ovary it was 3.58 g in Thari cattle. It was concluded that the right ovary was wider in diameter, larger in length and heavier in weight as compare to left one. This confirms the fact of right ovary being more active than the left one.

**Key words:** Thari cow, biometry, female genitalia, slaughter-house

### Introduction

Thari cattle are considered as the fair dairy and draught animal of tropics and sub-tropics (Wahid, 1975, Shahani, 1991). Although the animals of this breed produce a good quality of milk and meat (Bakhat *et al.*, 1984). The production is still below than the production of the breeds of developed countries. This is because of less exploitation of their genetic potential and reduced fertility rate due to lack of proper feeding, management, sexual health cover and knowledge of sexual status of the normal animal.

The knowledge of biometrical status of female genital tract is essential to perform artificial insemination, pregnancy diagnosis and dealing with the infertility problems (Memon, 1996). The information about biometry of the reproductive tract of Thari cow is scanty in the literature. The slaughter-house material would be the best source for obtaining the biometrical values (Rind *et al.*, 1999). Therefore this study was carried out aimed at providing basic information regarding the anatomical structures of normal reproductive organs of Thari cow.

### Materials and Methods

Fifty non-gravid female reproductive organs of adult Thari cows, slaughtered during 1998 at Mirpurkhas slaughter-house were randomly collected during the routine slaughtering operations and brought to the laboratory of the Department of Animal Reproduction for biometrical studies. Out of those nineteen (38%) tracts was considered as normal without having visible gross-abnormalities. The organs were cleaned and freed from adhering tissues and placed on a table in normal

position. The measurement of vulva, vagina, cervix, uterus and fallopian tubes were taken with measuring tape. The fallopian tube was dissected and stretched out before the measurement was taken. The size of ovary was measured with vernier calliper and weighed using triple beam balance, according to the technique of Sission and Grossman (1972). The results have been presented as means of the data for each parameter.

### Results and Discussion

**Ovary:** The ovaries of mature cow were oval and round in shape. The mean length, width and thickness of right ovary was recorded as 2.56, 1.33 and 1.46 cm and that of the left ovary 2.50, 1.30 and 1.40 cm, respectively. The weight of right and left ovary was recorded as 3.83 and 3.58 g, respectively in Thari cows (Table 1). The mean length of the ovary recorded in the present study fall with in the range (1.30 to 3.5 cm) of the results of Laing (1979), Dobson and Kamonpatana (1986) and Arthur *et al.* (1989). However the measurement for length recorded in the present study was shorter than the figures (2.8 to 5.0 cm) reported by Sission and Grossman (1972), Salisbury and Vandemark (1961), Settergren (1983), Roberts (1982) and Memon (1996) in cattle. The width of ovary as recorded in the present study was in agreement with the results (1.3 to 1.9 cm) of Salisbury and Vandemark (1961), Roberts (1982) and Memon (1996) in cattle. However, it was slightly smaller to those (2.5 cm) reported by Sission and Grossman (1972) in cattle.

The thickness of the ovary found in the present study was in the range of those (0.6 to 2.0 cm) recorded by Sission and Grossman (1972), Roberts (1982) and Pette

Table 1: The mean length, width, thickness and weight of ovaries in Thari cow

Organ	Measurements	Mean±SE
Right ovary	Length (cm)	2.56±0.11
	Width (cm)	1.33±0.08
	Thickness (cm)	1.46±0.07
	Weight (gm)	3.83±0.33
Left ovary	Length (cm)	2.50±0.10
	Width (cm)	1.30±0.09
	Thickness (cm)	1.40±0.08
	Weight (gm)	3.58±0.32

Table 2: The mean length and width of tubular parts of reproductive tract of Thari cow

Organ	Measurements (cm)	Mean±SE
Left oviduct	Length	21.31±1.04
	Right oviduct	21.78±1.15
Left horn	Length	20.90±0.71
	Right horn	21.63±0.57
Body of uterus	Length	1.70±0.16
	Width	2.17±0.11
Cervix	Length	7.80±0.48
	Width	2.72±0.10
Vagina	Length	20.67±0.86
	Width	5.08±0.13
Vulva	Length	10.24±0.26
	Width	8.94±0.21

(1993) in cattle. However, the results obtained by Salisbury and Vandemark (1961), Arthur *et al.* (1989) and Memon (1996) were greater than the present findings. The present findings for the weight of ovary were in agreement to those (3.8 g) reported by Arthur *et al.* (1989) and McEntee (1983) in cattle. On the other hand higher weight (5 to 19 g) of right and left ovary was reported by Salisbury and Vandemark (1961) and Roberts (1982). The discrepancy in the parameters could be due to breed variation as it is established fact that the ovaries of *Bos-indicus* breeds are generally smaller and lighter than those of the *Bos-taurus* breeds (Sloss and Dufty 1980). It was concluded that the left ovary is shorter in length, narrower in diameter and lighter in weight to that of the right ovary in Thari cows. This confirms the fact that the right ovary is more active than the left ovary (Rind *et al.*, 1999).

**Oviduct:** The oviducts are paired convoluted tubes connecting the uterus to the ovaries. The mean length of right and left oviducts was 21.78 and 21.31 cm, respectively in Thari cows (Table 2). The findings of present study were in agreement with the results (20 to 30 cm) of Sission and Grossman (1972), Roberts (1982), McEntee (1983) and Petter (1993) in cattle.

**Uterine horns:** The uterus of a cow is "Y" shaped and having two horns. The mean length of right and left horn was 21.63 and 20.90 cm, respectively in Thari cow (Table 2). These results fall within the range (15 to 30 cm) reported by Roberts (1982), however higher values

(35-40 cm) were recorded by Hafeez (1968), Sission and Grossman (1972), Sorensen (1988) and Petter (1993). The difference in values could have been due to age, breed, fertility status and shrinkage of the endometrium.

**Corpus uterus:** In domestic animals, two horns join together to form a body of uterus that is situated in between os-internum and true bifurcation of cornea. This is the point where semen is deposited during artificial insemination. The mean length and width of corpus uteri was 1.7 and 2.17 cm, respectively in Thari cows (Table 2). The results for length were slightly in line with those (2.3 to 2.5 cm) reported by Hafeez (1968), Roberts (1982) and Petter (1993) in cows. The higher values (3 to 5 cm) were reported by Sission and Grossman (1972) and Sorensen (1988) in cattle. The findings for the width of the present study were in agreement to the results (2.5 cm) reported by Sorensen (1988) in cows. Whereas, Sission and Grossman (1972) and Roberts (1982) reported higher values (3.75 to 4.40 cm) as compared with the present investigation.

**Cervix:** Cervix is a sphincter muscle like structure, which forms a physiological barrier between the vagina and uterus. The mean length and width of cervix was recorded as 7.80 and 2.72 cm, respectively in Thari cows (Table 2). The length recorded in this study was in agreement with the results (7.99, 6.7 and 7 to 10 cm) obtained by Roberts (1982), Garcia (1988) and Memon (1996) respectively in cows. Whereas the width recorded during present study were in agreement to the results 2.3 cm of Laing (1979) and Petter (1993) and were shorter than the results (3.35 to 6.25 cm) reported by Roberts (1982) and Garcia (1988) in cows.

**Vagina:** Vagina is a tubular sheath like structure, which extends from cervix to the urethral opening. The mean length and width of vagina was recorded as 20.67 and 5.08 cm, respectively in Thari cows (Table 2). These results were in agreement with the results (17.5 to 25 cm) reported by Roberts (1982) and Petter (1993) in cattle. However the results (25 to 30 cm) reported by Sission and Grossman (1972) was higher than the present findings. The measurement regarding the width of vagina was in agreement with the results (5.0 and 5.50 cm) recorded by Sorensen (1988) in cattle.

**Vulva:** Vulva is external portion of the tract that extends from vagina to the exterior opening. The mean length and width of vulva was 10.24 and 8.94 cm, respectively in Thari cows (Table 2). These results were in agreement with the results (10 to 12.5 cm) of Hafeez (1968), Sission

and Grossman (1972) and Roberts (1982) in cattle.

From the present study it is concluded that a good number of productive animals is slaughtered, which alarm the need of implementation of sexual health management programme in the area. However, the data presented may provide base line information about biometrical structure of various parts of the reproductive organs of the Thari cow. This may help to diagnose and treat various reproductive problems at an early stage to save the animals from sending to slaughter house.

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