

OVULATION RATE, TRANSUTERINE MIGRATION AND EMBRYO LOSS IN SAHEL GOATS OF ARID ZONE, NIGERIA

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The majority of the world's Sahel goats are found in the arid or semi arid zone of Africa and under suboptimal nutritional conditions in the rural areas of developing countries. The semiarid zone is characterized by low level of feeds. White *et al.* (1993) reported that uterine and fetal interactions might have a role in the prolificacy of Chinese Meishan females. Ovulation rates increase with increase age, number of estrous cycles, parities and to a greater extent between breeds (Christenson, 1993).

Intrauterine migration of fertilized zygotes occurs in West African dwarf goats and sows (Osuagwuh and Aire, 1983) and has been confirmed by comparing the number of corpora lutea in each ovary and number of embryos in the corresponding uterine horn. Because of the level of feeding around this zone and short period of rainfall, there is a tendency to lose embryos and a decrease kidding rate. Therefore, the objective of this study was to determine the percentage of embryo losses based on abattoir material.

Between January and December 1996, 80 pregnant uteri (with 160 ovaries) of mature Sahel goats without reproductive histories and at different stages of gestation, slaughtered at Maiduguri (semiarid zone) were examined. The reproductive tracts with the fetuses were carefully removed from the whole carcass for examination. Data were obtained on the number of corpora lutea in the ovaries, embryonic migration and loss and fetal distribution in the uteri. Presence of a functional corpus luteum on an ovary was taken as an evidence of ovulation from that ovary. From the number of corpora lutea the ovulation rate was determined.

Embryo migration was confirmed by comparing the number of CL in each ovary with the number of embryos in the corresponding horn (Roberts, 1971). Embryo loss was determined by comparing the total number of corpora lutea on both ovaries with the total number of fetuses in both horns.

Table 1 shows different types of ovulations recorded. A total of 132 ovulations were recorded with 80 (60.6%) ovulations from left ovaries and 52 (39.4%) from the right.

The detailed fetal distribution is shown in Table 2. A total of 108 fetuses were recorded, of these 48

(44.4%) were in the left horn and 60 (55.6%) in the right horn. No triple pregnancy was observed, while most of the pregnancies recorded were single pregnancies with 40 (50%) in the left horn, 36 (45%) in right horn. Most of the double pregnancies recorded (15%) were in the right horn.

Intra uterine migration involving 40 fetuses was recorded with 16 (40%) embryos migrated from the right to the left and 24 (60%) migrated from the left to the right horn. The embryos lost from the left horn were 16 (66.7%) and 8 (33.3%) from the right. The total embryo loss recorded was 24 (18%).

In this study on the Sahel goats, the ovulations obtained from the left ovaries were higher than those of the right ovaries. These findings are in contrast to the reports of Akpokodje *et al.* (1986). This could be due to breed difference which confirms the results of Christenson (1993), that the ovulation rates greatly differ among Chinese Meishan and Occidental females.

Table 1: Ovulation rate in Sahel goats of arid zone, Nigeria

Ovary	Left ovary	Right ovary
Total number of ovaries	80	80
Single ovulations	44 (55%)	36 (45%)
Double ovulations	12 (15%)	8 (10%)
Triple ovulations	4 (5%)	0
Total	80 (60.6%)	52 (39.4%)

Table 2: Number of fetuses in each uterine horn

Uteri	Left horn	Right horn
Total number of uteri	80	80
Single pregnancies	40 (50%)	36 (45%)
Double pregnancies	4(5%)	12 (15%)
Total number of fetuses	48 (44.4%)	60 (55.6%)

The number of fetuses recorded in the right horn was slightly higher than that in the left horn (55.6% v 44.4%). This agrees with the work of Osuagwuh and Aire (1993), who reported 50.8% fetuses in the right horn and 49.2% in the left horn in West African dwarf goats.

A total of 40 fetuses were involved in transuterine migration, out of these, 24 (60%) fetuses migrated from the left to the right and 16 (40%) from the right to the left horn. These values are higher than those recorded by Akpokodje *et al.* (1986). Studies in sheep have indicated that transuterine migration does not appear to be a cause of embryo mortality (Parr and Cumming, 1982). The percentage embryo loss recorded in this study (18%) compared favourably with that of Akpokodje *et al.* (1986) who recorded a value of 10.1% in Red Sokoto goat.

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