

Relationship of single and double ovulations with serum progesterone concentrations and fetal numbers in Mamasani goats

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Abstract

Determining the effect of single versus double ovulations on progesterone concentration and luteal tissue volume is so important for better reproductive management in goats. The aim of the present study was to establish the relationship between ovulation number, luteal tissue volume and progesterone concentrations in Mamasani goats. For this purpose, the uteri and ovaries of 192 goats were collected in a slaughterhouse during the breeding and non-breeding seasons. Before slaughtering, blood samples were taken and analyzed for assaying progesterone concentrations. Study groups in the non-breeding season were: 1-single ovulation, 2-unilateral double ovulations and 3-bilateral double ovulations of non-pregnant goats. The groups in the breeding season were: 1-non-pregnant single ovulation, 2-non-pregnant unilateral double ovulations, 3-non-pregnant bilateral double ovulations, 4-pregnant single ovulation with one fetus, 5-pregnant single ovulation with two fetuses, 6-pregnant unilateral double ovulations with one fetus, 7-pregnant unilateral double ovulations with two fetuses, 8-pregnant bilateral double ovulations with one fetus, and 9-pregnant bilateral double ovulations with two fetuses. Results showed that the right ovary had a pivotal role in ovulation during the non-breeding and breeding season. In both pregnant and non-pregnant gravid goats, the total volume of corpora lutea (CLs) as well as the serum progesterone concentration was higher after double ovulations. The total volume of CLs and the concentrations of serum progesterone in goats carrying two fetuses with single ovulation was significantly higher than that of animals with single ovulation and one fetus. It was concluded that although a higher concentration of progesterone in goats is associated with the total volume of luteal tissue, this level is not a reliable predictor for the number of fetuses per goat.

Key words: Corpus luteum, double ovulations, twin pregnancies, progesterone, Mamasani goat

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