

Accepted Manuscript

Follicular response and oocyte production following variations in ovarian stimulation in goats

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PII: S0093-691X(17)30557-5

DOI: [10.1016/j.theriogenology.2017.11.016](https://doi.org/10.1016/j.theriogenology.2017.11.016)

Reference: THE 14348

To appear in: *Theriogenology*

Received Date: 11 May 2017

Revised Date: 8 November 2017

Accepted Date: 12 November 2017

Please cite this article as: Mendes ClaudinéSilva, Barbosa LP, de Araújo ML, Gomes Pinheiro EE, Lents MP, da Silva Amorim L, Kiya CláKazumi, Santana AnaLúAlmeida, Follicular response and oocyte production following variations in ovarian stimulation in goats, *Theriogenology* (2017), doi: 10.1016/j.theriogenology.2017.11.016.

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2 **Follicular response and oocyte production following variations in ovarian**
3 **stimulation in goats**

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21 **ABSTRACT**

22 In this study, goats were subjected to ovarian stimulation protocols to evaluate possible
23 differences in ovarian follicular responses and oocyte production. Two experiments
24 were conducted to assess the effects of hormonal protocol duration (seven or twelve
25 days) and number of follicle stimulating hormone (FSH) applications (one or five
26 doses). All animals received intravaginal sponges saturated with 60 mg
27 medroxyprogesterone acetate and an application of 125 µg cloprostenol 72 h before the
28 sponges were removed. For ovarian stimulation, 120 mg FSH was applied in a single
29 dose 36 h before laparoscopic follicular aspiration (LOPU) or in five doses (30, 30, 20,
30 20, and 20 mg) at 12 h intervals, with the last dose applied 36 h before LOPU. In the
31 first experimental phase, ultrasonography was performed to monitor follicular number
32 and diameter, and in the second phase, the animals received LOPU to count the follicles
33 and cumulus-oocyte complexes (COCs) and for morphological classification. There was
34 no significant effect ($P > 0.05$) of any variable or combination of variables on follicle
35 number on Day (D) 0 or D3/D8 (day of LOPU). However, evaluation at D6/D11
36 revealed an effect ($P < 0.05$) from the protocol duration with the highest number of
37 small follicles resulting from the short protocol. There was also an effect ($P < 0.05$) of
38 FSH dose number on the resulting number of medium and large follicles, with more
39 medium follicles recovered after a single dose and more large follicles after multiple
40 doses. There was no effect of any variable ($P > 0.05$) on the diameters of the large,
41 medium, and small follicles, except for the D4/D9 evaluation, which showed a
42 combination effect for large follicles ($P < 0.05$). In the second phase, no variable had an
43 effect on the number of follicles visualized or aspirated, number of COCs recovered,
44 recovery rate, morphological quality of COCs in grades 1, 2, 3, and 4, or rate of viable

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