

OPU and ET

**The use of exogenous progesterone in sheep superovulation protocols influences the percentage of viable embryos****Augusto Ryonosuke Taira<sup>1</sup>, Juliana Dantas Rodrigues Santos<sup>1</sup>, Isabel Oliveira Cosentino<sup>1</sup>, Viviane Lopes Brair<sup>1</sup>, Caroline Gomes do Espírito Santo<sup>1</sup>, Pedro Henrique Nicolau Pinto<sup>1</sup>, Joanna Maria Gonçalves de Souza-Fabjan<sup>1</sup>, Jeferson Ferreira da Fonseca<sup>2</sup>, Rodolfo Ungerfeld<sup>3</sup>, Felipe Zandonadi Brandão<sup>1</sup>**

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The success of multiple ovulation and embryo transfer strongly depends on superovulatory protocols (SOV) success which has shown inconstant. SOV protocols have used different sources of progestogen with could impact viable embryo yield. This study compared the effect of different intravaginal devices containing medroxyprogesterone acetate (MAP) or progesterone (P4) during SOV on follicular development and the embryo quality. A total of 36 multiparous Santa Inês ewes received intravaginal sponges containing 60 mg of MAP (Progespon; Schering Plough Animal Health, SP, Brazil) for 6 d plus 300 IU eCG (Novormon 5000; MSD Animal Health, SP, Brazil) and 0.24 mg cloprostenol sodium (Estron, Tecnopec, SP, Brazil) i.m. 24 h before and 0.025 mg lecorelin (Synthetic GnRH, Gestran Plus; Tecnopec, SP, Brazil) 36 h after sponge removal. The SOV began 80 h after sponge removal, using 133mg of FSH (Folltropin-V, Bioniche Animal Health, ON, Canada), administered in six doses every 12 h. In the first dose of FSH, the animals were randomly allocated to three experimental groups (12 ewes/each) inserting of an intravaginal sponge impregnated with 60 mg MAP ( $G_{MAP}$ ); or a vaginal implant containing 330 mg of P4 (Eazi-Breed CIDR, Zoetis Indústria de Produtos Veterinarios Ltda, SP, Brazil;  $G_{P4}$ ), or a control group ( $G_{Control}$ ) without treatment. The devices remained in situ until the fifth dose of FSH. With the last dose of FSH, 0.24 mg of cloprostenol sodium was administered, and 12 h later, 0.025 mg of lecorelin i.m. After removing the intravaginal devices, ewes were naturally mated with fertile rams at 12 h interval from the beginning of estrus until 24 h after GnRH application. The ovaries were scanned by transrectal ultrasound (SonoScape, Shenzhen, China, 7.5 MHz linear transducer) every 12 h from the beginning of the SOV until the ovulation was confirmed and the follicles were classified as small (< 3 mm), medium (3-5 mm) or large (> 5 mm). Data were analyzed with a mixed model, including the treatments as a main effect and the repetition as a random effect. During SOV, the follicular population (< 3; 3-5 and > 5 mm) did not differ between treatments, and there was no difference in the number of CLs/treatment ( $G_{MAP}=7.7\pm1.2$ ;  $G_{P4}= 8.2\pm1.2$ ;  $G_{Control}= 6.0\pm1.1$ ;  $P = 0.40$ ). The number of structures recovered/ewe ( $G_{MAP}= 4.8\pm0.8$ ;  $G_{P4}= 4.9\pm0.8$ ;  $G_{Control}= 2.4\pm0.9$ ) and the number of viable embryos/ewe ( $G_{MAP}= 1.9\pm0.7$ ;  $G_{P4}= 3.3\pm0.7$ ;  $G_{Control}= 1.0\pm0.7$ ) tended to differ with treatments ( $P= 0.08$  for both). The percentage of viable embryos/recovered structures was greater with P4 and MAP than in controls (71.9%<sup>a</sup>; 49.9%<sup>a</sup> vs 24.5%<sup>b</sup>;  $P= 0.04$ ). In conclusion, the administration of P4 or MAP in SOV protocols did not influence the amount of structures recovered in sheep. However, the greater percentage of viable embryos/recovered structures with the use of exogenous progesterone suggests that the hormonal milieu in which these follicles developed influences the final embryo quality.