PERFORMANCE OF SUPEROVULATED BOER DOES ON OVULATION AND CONCEPTION RATE UNDER INTENSIVE SYSTEM FARMING

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Multiple ovulation and embryo transfer is widely used to increase genetically superior offspring produced from selected females (1). Ovarian superstimulation in domestic animals may thus be used to increase the number of developmentally competent oocytes for in vivo or in vitro embryo production (2). Equine chorionic gonadotrophin (eCG) traditionally termed as "pregnant mare serum gonadotrophin" is an exogenous gonadotrophin which can stimulate follicular growth and subsequently ovulation (3). eCG resembles pituitary FSH and LH which identified as the complete gonadotrophin since it is able to induce follicle growth, oestrogen production, ovulation, luteinization and progesterone synthesis (4).

The experiment was conducted using a total of 29 pluriparous non-pregnant Boer does maintained indoors. The animals were randomly divided into 3 groups which consists of 11 (G1), 8 (G2) and 10 (G3) does, respectively. All does were subjected to superovulation protocol by synchronizing with Controlled Internal Drug Release (CIDR) device containing 0.3 g progesterone and left intravaginally for 18 days. Superovulation treatments were given at 24 hours prior to CIDR removal using a single intramuscular injection of eCG for every does in 600 IU (G1), 800 IU (G2) and 1000 IU (G3) eCG doses. The ovulation response towards superovulation in terms of number of corpora lutea (CL) was assessed once by transrectal ultrasonography on day 7 after the onset of oestrus. Pregnancy rate was determined at day 30 post mating, using ultrasound scanner. Data of kidding were recorded at the end of gestation.

Table 1 shows the ovulation rate of does at different doses of eCG treatment. In this study, all 29 does ovulated during oestrus. The present finding is higher than previous study of 89.3% ovulation rate (4). Highest mean number of CL per doe is from G2 at 2.38 ± 0.32 followed by G3 (1.6 ± 0.22) and G1 (1.45 ± 0.15). This result shows a significant difference ($P< 0.05$) on ovulation rate between treatments. In the mean time, the highest range recorded on mean no. of CL per doe is from G2 at 1 to 4 CL followed by G3 (1 to 3) and G1 (1 to 2).

Meanwhile, table 2 showed the number of does conceived by natural mating. Out of 21 oestrus does, 11 (52.4%) does were pregnant as diagnosed using transrectal ultrasonography technique on day 30 post mating. The present study demonstrated 72% lower pregnancy rate after a long-term progestagen treatment after undergoing 18 days CIDR treatment with eCG treatment on day 17. Our findings were supported by previous finding (5). The short-term progestagen treatment (6 d) on the other hand resulted in a higher pregnancy rate, probably due to the ovulation of newly recruited growing follicles (6). According to the mean gestation period recorded, all does were kidded in range 144 to 145 day gestation period. Overall, the present study showed shorter gestation period compared with Boer does (148.6 ± 0.9 days) and Nguni does (149.1 ± 0.2 days) (7). Mean number of kids per doe result all group treatments had kidded in range 1.66 to 3 kids. However, no significant difference ($P> 0.05$) was

recorded between treatments. Moreover, our findings showed all groups were able to deliver more than one kid. This finding was comparable with previous study (7).

Table 1: Ovulation rate

Parameter	G1	G2	G3	Total
No. of females synchronized	11	8	10	29
No. of does ovulated	11 (100%)	8 (100%)	10 (100%)	29 (100%)
Mean no. of CL on left ovary	1.1 ± 0.1 (1-2)	1.3 ± 0.1 (1-2)	1.0	
Mean no. of CL on right ovary	1.0	1.3 ± 0.2 (1-2)	1.3 ± 0.1 (1-2)	
Mean no. of CL per doe	1.4 ± 0.1[a] (1-2)	2.3 ± 0.3[b] (1-4)	1.6 ± 0.2[a,b] (1-3)	

[a, b] Values with different superscript in the same row differ significantly at $P< 0.05$.
Mean no of CL (range).

Table 2: Pregnancy & Conception rate following natural mating

Parameter	G1 (n=11)	G2 (n= 8)	G3 (n=10)	Total
No. of does in oestrus	9	5	7	21
No. of does pregnant	5 (55.5%)	1 (20%)	5 (71.4%)	11 (52.4%)
No. of does aborted	0	0	2	2
Gestation period (days)	144.4 ± 7.5	145.0	145.3 ± 6.5	
Mean no. of kids per doe	2.40 ± 0.51	3.00	1.66 ± 0.33	

In conclusion, multiple ovulations occurred after treatments with 600, 800 and 1000 IU eCG. However, the proportion of gestation period was not influenced by eCG doses. Thus, the reduced doses of 1000 IU eCG did not alter the numbers of kids born.

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