

Studies on Superovulation and Embryo Recovery in Farmed Red and Fallow Deer

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The effects of various gonadotrophin regimens on ovarian ovulatory responses, endocrine changes and recovery/fertilization rates of ova in red (*Cervus elaphus*) and fallow deer (*Dama dama*) were examined in 1989. Fifty mature females of each species were treated during their breeding (CIDR) season with intravaginal progesterone-releasing devices for 14 days (insertion day = day 0) and one of five doses of ovine FSH (0, 0.25, 0.5, 0.75, 1.0 units). All animals received a dose of 200 IU PMSG on day 11 and eight doses of FSH administered at 12-h intervals starting at PMSG administration. After CIDR removal, all hinds/does were run with fertile males (10:1 ratio). They also received intravaginal inseminations (20 to 30×10^6 motile thawed spermatozoa/insemination) on four occasions at 12-h starting 24 h after CIDR removal. Four animals in each treatment were blood sampled every 2 days from CIDR insertion until day 24 and every 2 h for 70 h after CIDR removal. Plasma samples were analyzed for progesterone, estradiol-17B,

androstenedione, and LH. Ova were recovered by flushing the uterus during midventral laparotomy under general anesthesia 7 days after CIDR removal. The numbers of corpora lutea (CL) and unruptured follicles (> 5 mm) were recorded. Both species exhibited a curvilinear pattern of ovarian response to increasing doses of FSH. The highest numbers of CL were observed following treatment with 0.5 units of FSH. Ova recovery rates were low for both breeds (red, $32.7\% \pm 5.1\%$; fallow, $30.6\% \pm 5.1\%$) with no differences between treatment groups. The mean fertilization rate (\pm SEM) of ova recovered from red hinds was $50.2\% \pm 8.2\%$, with the majority of the embryos at the morula stage. None of the ova recovered from fallow deer had cleaved. Present indications are that sperm transport, and hence fertilization, may be adversely affected by high follicular secretion of estradiol. It is apparent that studies are needed to define the optimal site and time of semen deposition within the reproductive tract to produce satisfactory fertilization rates.

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