

SUPEROVULATION AND OVA RECOVERY IN FARMED FALLOW DEER (*Dama dama*)

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Fallow deer are highly seasonal breeders. Does are monovular and can exhibit regular oestrous cycles of 21-23 days duration from April to August on New Zealand farms (1).

Superovulation of 36 mature fallow does was attempted in May 1987 by gonadotrophin administration following intravaginal CIDR (12% progesterone, Type-S, AHI) insertion for 14 days. Three treatments were applied: (A) 1000 iu PMSG (Pregnenol, Heriot Agencies), administered as a single i.m. dose 48 hr before CIDR withdrawal; (B) 20 mg FSH (Follitropin, Vetripharm) administered i.m. in a decreasing dose regimen, twice daily for 4 days, the last dose coinciding with CIDR withdrawal; (C) 750 iu PMSG + 14 mg FSH; PMSG administered as for (A) and FSH administered as for (B). Immediately after CIDR withdrawal does were joined with crayon harnessed fertile bucks. Onset of oestrus was recorded by frequent observation over four days following CIDR withdrawal. Ova recovery (OR) was performed after 6-8 days from CIDR removal by uterine flush under surgical conditions. Numbers of corpora lutea (CL) and total stimulation points (TS; including cystic and luteinised follicles) were also recorded.

Group	n	CL	TS*	OR*	%REC	%FEC
A	12	9.2±2.5	16.8±2.0 ^a	3.7±1.1 ^a	40.0	70.0
B	12	6.3±2.9	7.0±3.1 ^b	1.1±0.5 ^b	17.7	84.6
C	12	11.2±3.3	20.4±3.0 ^a	1.9±0.5 ^{a,b}	17.2	52.2

* differing superscripts indicate significant differences ($p < 0.05$)

For does that had superovulated, onset of oestrus generally occurred between 15-24 hr after CIDR removal; a significant advancement of oestrus compared with the CIDR-synchronised cycle (2). Eight does receiving FSH alone failed to respond ($TS < 2$). However, the remaining four does ranged in response from 4 to 30 CL, indicating an "all or none" response to this FSH preparation. For both groups receiving PMSG, only one doe failed to respond. Large numbers of cystic and luteinised follicles were observed for these groups, indicating overstimulation and a high sensitivity to PMSG. For superovulated animals, embryo recovery was poor, indicating that overstimulation had led to poor ovum quality, fertilisation failure and/or disrupted ovum transport. A wide range of embryonic developmental stages, as well as unfertilised ova, were collected. This is also indicative of overstimulation and also suggests that natural mating may not be effective in ensuring high rates of fertilisation.

Further work will focus on PMSG/FSH regimens, ovulation timing and AI to improve stimulation response and embryo recovery.

- (1) Asher, G.W. (1985) *J. Reprod. Fert.* **75**: 521-529.
- (2) Asher, G.W., Barrell, G.K. and Peterson, A.P. (1986) *J. Reprod. Fert.* **78**: 487-496.