FIELD EXPERIENCE WITH ADVANCED CALVING AND INDUCTION OF TWINNING IN DEER

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1. INTRODUCTION

During March and April of 1987 13 deer farmer clients of our practice participated in a twinning and early calving trial.

The earliest mating was three weeks before the expected start of the rut in Southland, which is usually considered to be the last few days of March.

The stags were not treated with hormone. The hinds were programmed by insertion of one sheep CIDR for red deer and two CIDRs for red X-Wapiti deer for between 7 and 14 days. On CIDR withdrawal hinds were given 200 iu PMSG ("Pregnecol") for early calving alone, and 400 iu PMSG ("Pregnecol") for hinds for which twinning was hoped.

Where only one stag was used on a given farm the removal of CIDRs was programmed so that no stag had more than six hinds on heat every second day.

The numbers of deer involved on each property, the objective for each group, the advancement desired, the age of the hinds and, where appropriate, a history of the hinds is given in Table 1.

2. RESULTS

Results are presented in Tables 1 and 2.

Note: further to these studies another Southland veterinary practice (L Laughton, Pers. Comm.) treated 40 hinds for early mating and twinning on one property by using 500 iu "Pregnecol" subsequent to CIDR priming. In total 51 fawns were born over a ten-day period which was two weeks prior to the normal calving season for that property. However, nine fawns were born dead and two hinds died as a result of calving problems. Despite this result the farmer concerned repeated the exercise in 1988 with 200 hinds.

3. DISCUSSION

3.1 Two of the thirteen stags used were rejected because they appeared disinterested in oestrous hinds.

3.2 Of 290 hinds treated 273 (94%) came into oestrus immediately post-CIDR withdrawal. Of the 273, 201 calved to that oestrus (74%). The final number conceiving immediately post-treatment represented 69% of those treated.

3.3 The percentage of hinds producing twins was low:
- 2 of 50 treated with 200 iu PMSG (4%)
- 18 of 134 treated with 400 iu PMSG (13.5%).

However, three of the seven farmers who desired twinning wished to attempt the same in March 1988. The predominant reason was that one surviving twin in most cases would pay for the treatments.

3.4 Of hinds carrying twins 30% (6 of 20 multiple calvings) required assistance at calving. This is considerably higher than dystocia rates of singleton-bearing hinds.

3.5 The mortality rate of twins was high. Where the farmer intensively managed his fawning the twin survival rate was more than 50%. Intensive management included hand-rearing where necessary. One farmer even supplemented twins in the paddock until the hind had accepted and could feed both twins.

3.6 A higher percentage of dry dry hinds was evident at calving in the treated groups compared with untreated groups on the same properties. For example, farmer No. 8 had 5 dry hinds from 21 treated (24%) in his 15-month-old treated group. In the rest of his 15-month animals (100 in total) he had more than 90% calving as he had achieved for the past four years.

3.7 All participating farmers were asked whether they would undertake the exercise again. 50% said they would attempt some form of reproductive manipulation in future years.

4. PRACTICAL APPLICATIONS FOR REPRODUCTIVE MANIPULATION

4.1 In our opinion the success of induction of twinning was relatively unsuccessful. Any farmer attempting superovulation must maintain a high level of supervision during the fawning period in order to increase the survival rate of twins produced, and to prevent mortalities in hinds at calving.

4.2 There may be an application for this technology in bringing oestrus in persistently late calvers forward to correspond with the normal breeding season. For example, one hind which was treated had a calf only two weeks before CIDR insertion and was therefore lactating heavily. This hind calved successfully mid-November, thereby proving that early induction of oestrus is indeed possible in the early neonatal period.

4.3 It is probably that by mating three or four hinds early in each mating mob the entire mob would have its median calving date advanced. In the present trial 8 of 13 farmers noticed an advance of 1-2 weeks earlier in mean calving dates in mating mobs in contact or nearby the treated animals.

Four of the farms had untreated animals mixed with treated deer. All had some hinds which had clearly calved earlier than normal "in sympathy" with treated hinds.

TABLE 1

Client	Treated	Aim	No's calving to treatment (and %)	Weeks Advanced	Age of Hind	Previous Breeding History	Sympathetic Oestrus in in-contact hinds
1	10	E	2 (20)	0	15 mth		+ farm
2	2	T	0 (0)	3	M.A.	2x wetdrys	+ 1
	5	E	5 (100)	3		1x lactating	
3	17	T	6 (35)	3	M.A.		+ 1
	11	E	6 (55)				
4	28	E	20 (71)	3	27 mth	All drydrys	+ 12
5	7	E	0 (0)	3	M.A.	2x drydrys	
6	10	E	0 (0)	2 1/2	M.A.		
7	50	T	45 (90)	3	M.A.		+ 12
	18	E	14 (78)	(but spread)			
8	21	E	14 (66)	0	15 mth		
9	28	T	22 (79)	2	M.A.		+ farm
10	12	T	8 (66)	2	M.A.	3x drydrys	+ farm
11	38	T	30 (79)	2	M.A.		
12	22	T	20 (91)	3	M.A.		+ farm
	5	E	4 (80)	(but spread)	M.A.		
13	4	T	3 (75)	2 1/2	M.A.		
	2	E	2 (100)				
	290		201				

* E = Early calving desired

T = Twinning desired

MA = Mixed Age

TABLE 2

Client	No's Done	Aim	Set Twins	Ass. Calvings	Indiv. Twin Deaths	Hind Deaths	Season Drys	Repeated 1988
1	10	E	0				4	/(E)
2	2	T	0				2	/(E)
	5	E	0				0	
3	17	T	4(E)	1	4		3	/(E/T)
	11	E	0				1	
4	28	E	1(E)	1	2	1	?	X
5	7	E	0				0	X
6	10	E	0				0 (late)	X
7	50	T	4	1	3		1	/(E/T)
	18	E	0				0	
8	21	E	0				5	X
9	28	T	2(E)		2		0	/(E/T)
10	12	T	1(E)				2	X
11	38	T	4 + Trip(E)	2	9		0	X
12	22	T	2(E)	1	2		1	/(E/T)
	5	E	1				0	
13	4	T	0				0	/(E/T)
	2	E	0				0	/(E/T)
			20*	6	22		19	

E = Early
T = Twinning
* = Two sets twins from low PMS dose, 18 sets from high PMS dose

An example is farmer 4, who had 40 second calvers he wished to treat. 12 of the proposed treatment group were removed because they were in poor condition (less than 80 kg), but they were kept in the same mating mob. All 12 of these hinds calved in synchrony with deer induced to calve early using the CIDR/PMSG programme.

4.4 Application for early mating of first calvers

In Southland the majority of 15-month hinds conceive at the time at which older hinds are undergoing their second oestrus cycle. It may therefore be beneficial to treat a small number of yearling hinds in each group where these animals are being mated separate from mixed age hinds. For example, farmer 8 had average birth dates 4 weeks advanced in his treated first calvers compared with his untreated first calvers.

The fawns from the earlier calving hinds were 10-15 kg heavier on average at weaning. This has several implications:

i. The farmer could wean first calvers earlier and more effectively flush them for their second rut.

ii. Higher female weaning weights could have a beneficial effect on ultimate bodyweights at first mating 15 months.

iii. Higher male weaning weights will mean venison stags achieve killing weights at an earlier date.

4.5 Maximum use of one stag can be facilitated by this technology. For example, farmers 7 and 12 own an outstanding German stag. They mated him to 107 hinds over six weeks and achieved 95 fawns by him (89%). 95 of the hinds were treated (83 fawns were born to the post-programme oestrus). The stag was given approximately six hinds every second day by removing the CIDRs at the appropriate intervals.

The stag was rested for a few days in early April and then had 12 untreated hinds running with him until the end of April. All 12 calved.

Thus the first mating were on March 12 and the last matings were on April 30. The total number of hinds mated successfully was 95. This stag/hind ratio is somewhat in excess of normally accepted ratios.