CALVING AND FAWNING PERFORMANCE OF RED AND FALLOW DEER IN NORTHERN NORTH ISLAND REGIONS

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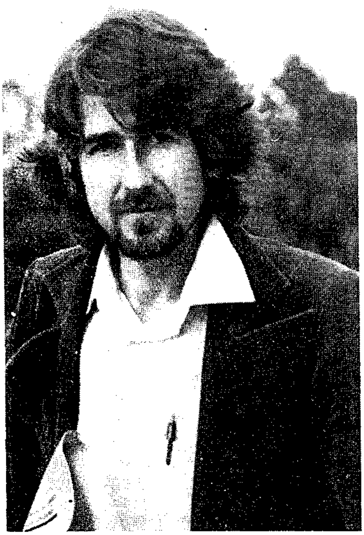
INTRODUCTION



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In 1980 33% of all deer farmed in New Zealand were north of Taupo in the Waikato, Bay of Plenty and Auckland region; including 28% of all red deer and 65% of all fallow deer. This proportion of farmed deer justifies at least an initial investigation into factors affecting productivity in these regions.

On-farm monitoring of growth and reproduction of deer was instigated from Ruakura in January 1980. It now encompasses 20 red deer and 5 fallow deer farms.

With the high price of female breeding stock, productivity levels are determined by the numbers of surviving offspring produced each year. It is, therefore, necssary to obtain a measure of female productivity in terms of calving/fawning rates, weaning percentages and preweaning mortality. This was our objective in the 1980/81 calving/fawning season. It provided some insight into those problems affecting overall reproductive productivity.

This paper combines data from two sources:

- Daily on-farm monitoring of red and fallow deer during the birth season 1980/81.
- Postal survey to deer farmers in the Waikato, Bay of Plenty, and South Auckland regions; March 1981.

For the purposes of this paper, "calving" refers to red deer and "fawning" to fallow deer.

REPRODUCTIVE PERFORMANCE

From fig. 1 it can be seen that the seasonal spread of birth differed for the two species. Fallow births were confined within 2 months (93% born in December), while red deer births were spread over 4 months (97% born between November and January).

A wide birth spread presents management problems in terms of stock movement and pasture allocation.

The spread of conception was calculated by back-dating all birth dates the appropriate number of days of gestation (fig. 1).

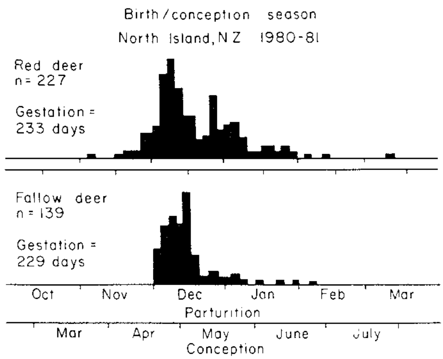

Fig. 1: Distribution of births and conceptions. Northern North Island 1980/81.

The calving/fawning performance is represented in two ways:

- The number of animals born relative to the number of dams previously mated. This is a "minimum birth rate" because some mortalities may have been overlooked.
- The number of young weaned (or counted in March) relative to the number of dams intended to calve fawn (weaning percentage).

In addition, the number of preweaning deaths relative to the number of animals born is presented as the "minimum percentage mortality".

For questionnaire and daily monitoring data combined, there was little difference in the red deer calving rate, weaning percentage and minimum percentage mortality between the Waikato, Bay of Plenty and South Auckland regions. Fallow deer farms were too few for regional comparison.

There was some suggestion that smaller red deer farms (up to 40 hinds) had 6–7% better calving performance, but similar mortalities, than larger (40–300 hinds) farms (table 1).

Table 1: Calving performance of red deer by farm size.

Size of hind group	Farms	Hinds	Minimum calving rate (%)	Weaning rates (%)	Minimum % mortality
1-20	49	504	92.7	83.7	9.6
21-40	28	786	93.0	84.1	9.6
41 +	20	1929	84.4	78.4	7.1
Total	97	3219	87.8	80.6	8.2

Table 2: Comparison of red deer calving and fallow deer fawning performance.

	Farms	Hinds/does	Minimum birth rate (%)	Weaning rate (%)	Minimum % mortality
Red	97	3219	87.8	80.6	8.2
Fallow	21	473	79.9	66.4	16.9

Overall productivity was lower for fallow deer than for red deer (table 2). The minimum fawning rate and weaning percentage were about 15% lower and the preweaning mortality was about twice that of red deer.

Daily monitoring of fallow deer during the fawning period also involved laboratory diagnoses of fawn deaths. Unfortunately, this was not attempted with red deer.

Of the 139 fallow fawns identified at birth, 27 (19.4%) died prior to weaning.

There was a relationship between birth weight and fawn survival. Fawns less than 3.0 kg suffered 71% mortality compared to 18% mortality for heavier fawns. Similar data have been presented by Blaxter and Hamilton (1980) for red deer in Britain.

Mortality diagnoses for fallow fawns (table 3) show that the largest proportion of deaths were due to misadventure (caught in fences) and birth problems (undersized fawns and parturition hazards). Mismothering due to handling at birth was believed to have been the causal factor behind only two deaths (1.5% of all fawns handled).

Table 3: Diagnoses of fallow fawn deaths.

	Number of deaths	% of deaths
Misadventure	10	37
Birth problem	6	22
Infectious agent	5	18
Mismothering	5	18
Unexplained	1	4
Total	27	100

No disease episodes were implicated in fawn deaths.

The highest proportion of fawn deaths resulted from entanglement in standard mesh-size deer fences. One farm monitored had non-standard small mesh fences. Fawns were not capable of crawling through the wire and consequently, no fence deaths were recorded. A large proportion of fallow fawn deaths can be overcome by reducing the hazard presented by standard mesh fences (e.g. reducing mesh size with extra wires or chicken mesh).

In total 148 calves and 130 fawns were weighed at birth. Average birth weights are presented in table 4. For both species, males were 8 – 10% heavier than females at birth.

Table 4: Average birth weights for red and fallow deer (kg).

	Red deer	Fallow deer
Male	9.4	4.3
Female	8.8	3.9

Greater variation in birth weights was evident with red than fallow deer (fig. 2). However, the red deer sample included a few individuals with some degree of wapiti parentage which may have exaggerated the observed variation towards the upper limit of birth weights.

Preweaning calf/fawn growth (table 5) was calculated as the difference between the March weaning weight and birth weight, divided by the interval between.

Table 5: Preweaning growth rates and weaning weights for calves and fawns tagged at birth.

	Red deer		Fallow deer	
	Growth (kg/week)	Weaning wgt (kg)	Growth (kg/week)	Weaning wgt (kg)
Males	2.6	34.7	1.3	20.1
Females	2.4	32.5	1.1	18.0

The regression of weaning weight on birth date (corrected to a standard birth weight, fig. 3) shows that later born calves/fawns are proportionally lighter at weaning.

Within the range of birth dates a prediction of weaning weight can be made on the basis of birth date.

For every 10 days from the onset of calving/fawning expected weaning weights were reduced by 4 kg for red deer and 1 kg for fallow deer.

Calves/fawns born later than January are a problem if pre-rut weaning is desired. These individuals are too small to wean and have to remain with their dams.

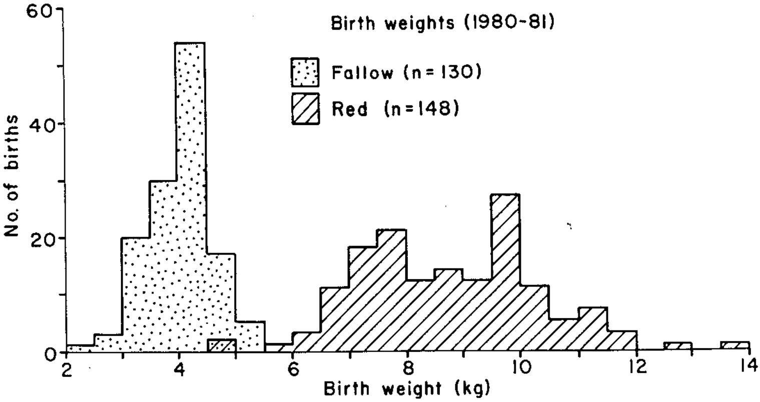

Fig. 2: Distribution of birth weights for red and fallow deer.

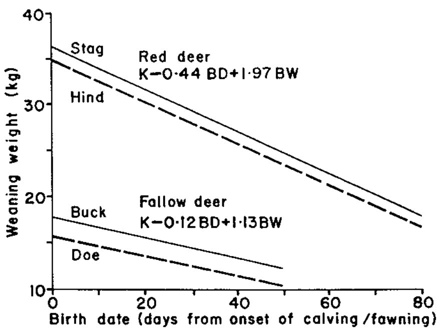

Fig. 3: Regression of weaning weight (WW) on birth date (BD) for standard birth weight (BW).

CONCLUSIONS

- A wide spread of calf births for red deer presents difficulties in stock movement and pasture allocation as well as poor performing late calves.
- Overall productivity of fallow deer was low. This was a function of a poor fawning rate and high preweaning fawn mortality.
- A large proportion of fawn deaths were accidental and can be prevented by reducing fence mesh diameter.
- Handling and tagging of calves/fawns at birth provided useful data and was accomplished with little difficulty or mortality.

REFERENCES

Blaxter, K.L.; Hamilton W.J. 1980: Reproduction in farmed red deer. 2. Calf growth and mortality. *Journal of Agricultural Science, Cambridge, 95:* 275–285.