


PERINATAL CALF LOSS IN FARMED DEER AT INVERMAY

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Introduction

In recent years over the deer calving season on the Invermay Deer Research farm a number of dead red, wapiti and wapiti x calves have been post mortemed by the Invermay Animal Health Laboratory. The majority of the deaths appear to have been the result of dystocia.

An attempt was made to systematically define and classify the cause of perinatal deer calf deaths (from birth to one month).

Because of the possible inter-seasonal differences in the type and numbers of deer calf deaths it was proposed to run the investigation over at least three calving seasons. Also with the low numbers of submissions expected an attempt was made to get interested deer farmers on adjacent commercial properties to submit any dead calves to the Invermay Animal Health Laboratory.

A similar recording of the causes of fawn deaths among fallow deer on Ruakura Research Station was reported by Asher *et al.* (1981) but the method of classification was fairly basic and the cause of red deer calf losses were not examined. Blaxter and Hamilton (1980) in an investigation of calf mortality over a 7 year period in an extensive red deer breeding herd in Britain divided the mortality pattern into stillborn, deaths at parturition and during the first 24 hours of life and deaths from after 24 hours of birth to weaning. No laboratory investigations of the cause of death were made. Mortality was correlated more to the weight of the calves at birth

100% mortality for calves weighing less than 4.0 kg - declining to 5% for calves weighing 6-7 kg. The birth weight of the calf was significantly correlated with the weight of the hind at the time of the rut.

In Blaxter and Hamilton's paper - disease was not thought to be a "significant problem" - misadventure and abandonment by the hind was a major cause of perinatal death. The herd they studied was a "feral" one. It was thought that infections could play a more important role in the more intensive deer farms in New Zealand.

Design

All calves dying on the Invermay deer farm were collected by the deer farm technicians and submitted for post-mortem examination. Any animals collected on weekends and holidays were frozen for later examination. Post mortem examinations were carried out by the usual methods McFarlane (1965) and appropriate samples were taken for histopathological and bacteriological examination. Results of the examination were recorded against a simple checklist.

Results

Over the 1983-84, 1984-85 calving seasons between November and January a total of 46 calves were post-mortemed. All but three from the Invermay herd of 250 calving hinds. This herd is composed of red, wapiti and wapiti x red hinds.

The results of submissions from Invermay may be biased because of the variety of management systems used, the more intensive handling and the low numbers of calves submitted. These results may not be applicable to commercial farms.

However the lesions encountered on post mortem examination could be seen on any deer farm.

The majority of deaths occurred at parturition and could be classified as:

Classification	Number (%)	
Mismothering - starvation	11	(24)
Misadventure - starvation	8	(17.6)
Stillbirth	11	(24)
Dystocia	11	(24)
Post Calving trauma	2	(4.4)
Infections	1	(2.2)
Unknown	<u>2</u>	(4.4)
	46	

The majority of the mismothering starvation cases took place after handling - i.e. yarding the hinds, calf tagging and after calving assistance. Post mortem examination revealed that they had not fed and their brown fat had been metabolised but they had walked and breathed and there was no evidence of trauma or dystocia.

The misadventure starvation cases came from calves that had been caught up in fences or more usually had escaped into the next paddock. They showed similar post mortem findings to the above.

The stillbirth animals were found dead in the paddock. They had not breathed, fed or walked. Their brown-fat was not metabolised and they showed no evidence of trauma or dystocia.

The dystocia cases had breathed but had not fed and their brown fat was not metabolised. The majority showed oedema over the head or beneath the mandible and along the neck. A few showed rib and liver fractures. Brains and sometimes the spinal cord were examined in most calves and in only one case was evidence of meningeal haemorrhage demonstrated; a contrast to that reported in lambs and calves. (Haughey, 1973, 1975).

The post calving trauma deaths were the result of attack by other adult hinds. Fractures and bruising were seen in the dead calves submitted.

Only in one case an infectious cause was seen with a bacterial polyarthritis and pericarditis in a 4 week old calf.

The unknown group were animals submitted in an extremely decomposed state so the cause of death could not be defined.

I. Influence of Calf Weight and Sex on deaths

(a) Stillbirths

Breed	Number	Sex		Average Weight (kg)	Normal range (kg)
		Male	Female		
Red	6	5	1	6.1	6-9*
Wapiti x Red	2	1	1	11.6	8-14*
Wapiti	2	2	0	13.6	10-17*

(b) Dystocia

Breed	Number	Sex		Weight (kg)	Normal range (kg)
		Male	Female		
Red	6	5	1	9.2	6-9*
Wapiti x Red	2	2	0	12.5	8-14*
Wapiti	2	2	0	14.65	10-17*

It must be realised that the data above represents very low numbers of animals so its interpretation must be guarded but the indication is that more males die from stillbirths and dystocia than females. Lighter males are found in stillbirths and heavier calves in dystocia.

II Thyroid weight

Thyroid weights were measured routinely at post mortem examination. The decomposed condition of many of the calves at post mortem examination meant that only small numbers of thyroids were suitable for examination. The red deer thyroids showing normal histology weighed between 2-5 grams. A Canadian wapiti stillborn calf examined had a thyroid weighing 22 g. This showed a severe hyperplasia on histopathological examination.

* G Moore (pers. comm)

Bacteriology

Random bacteriological examination was carried out in a few cases.

No significant bacteria were isolated except for Staphylococcus aureus from a 4 week old red deer calf showing pericarditis-polyarthritiis.

Discussion

The low numbers of animals examined on this survey and the strong bias towards Invermay Deer Farm animals would indicate the results may not apply to commercial deer farmers. Deer farmers do collect dead calves but freeze them for taxidermy - this may explain the low numbers received. The deer herds in the area are also small.

It is evident from this limited survey that the lesions of dystocia in deer are minimal compared with lambs and calves. Apart from rib fractures in few wapiti x red calves, meningeal haemorrhage in one red calf and liver fractures in another red calf the more severe lesions seen in dystocia cases in other farmed animals were not seen. The significance of the hyperplastic thyroids seen occasionally in perinatal deer calves on Invermay is unknown.

The mortality in red deer calves on Invermay is low at 7% (G. Moore pers. comm) this contrasts to the findings of Asher (1984) where red deer calf mortality on 4 monitored farms in the northern North Island averaged 12% over three seasons.

The majority of deaths on Invermay occurred over parturition and were due to stillbirths or dystocia. Infections did not play a significant role in these deaths.

References

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