

MANAGEMENT DURING THE RED DEER CALVING SEASON 54

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The present high prices attained for live deer, in particular breeding hinds, highlight the importance of optimising reproductive performance in terms of calving rates, calf survival and calf growth. In this paper, we will consider three aspects of red deer reproduction that are pertinent to deer farming systems; the calving season, reproductive rates, and calf growth.

#### Calving season

As with most species of northern temperate origin, red deer calve in mid summer. The generalised pattern of calving across several Waikato farms over the last three seasons is presented in Figure 1. In total, 35% of calves were born in November, 56% in December and the remaining 9% in January. On some farms occasional calves have been born as late as March.

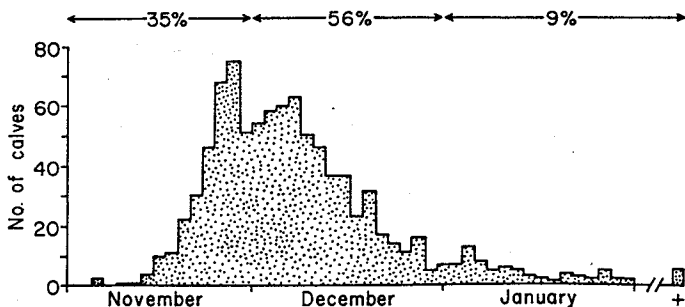


Figure 1: The frequency of red deer birth dates on six Waikato farms during the 1981, 82 and 83 seasons.

The actual onset of calving and the median calving date varied between farms and years by up to three weeks, however, most individual farms experienced rather drawn-out calving seasons with the inherent problems of long-term set stocking over summer.

The reasons for the wide season of births for red deer, which may not necessarily be a national or universal phenomenon, are not clear. It may represent a general lack of synchrony of oestrus (heat) in hinds or a high level of conception failure resulting in returns to service at approximately eighteen day intervals (oestrous cycle length of red hinds). In the first case, artificial synchronisation of hinds (progesterone pessaries or implants) may, in future, be a pertinent management tool on problem farms. However, the second case will require more information on the basic cause of conception failure (eg. failure to ovulate, poor stag response to oestrus etc) before any management recommendations can be given.

There are numerous arguments for advancing the calving season to better suit feed supply under New Zealand pastoral conditions. Spring calving of red deer would have many advantages in terms of hind lactation and calf growth rates. Earlier calving would, however, necessitate manipulation of the mating season, such that peak fertility of hinds and stags occurred towards summer rather than autumn. Some advances have been made in New Zealand and Britain towards this goal but it will be several years before the techniques are reliable enough for commercial use on farms.

### Reproductive rates

The twinning rate of red hinds is low and probably outside the scope of selection for most farmers, and we consider here only the proportion of hinds conceiving at a single ovulation resulting in a singleton birth.

Table 1 presents overall reproductive rates of six Waikato red deer farms closely monitored during the 1981, 82 and 83 seasons. For comparison, questionnaire information from other northern deer farms is included.

Table 1: Red deer reproductive rates 1981-83.

	Hinds	Calves born	Calving %	Calf mort. %	Weaning %
Monitored farms	1005	923	91.8	12.5	80.4
Questionnaire farms	5866	5004	83.3	8.1	78.5

Without close monitoring (the usual case), farmers will generally underestimate the number of calf deaths and, therefore, the number of calves born. This is illustrated in Table 1. Whereby, although weaning rates were similar, the calving rate and calf mortality rate were lower for the non-monitored farms.

Although calving rates were generally high (90%+), occasional farms had obvious problems of low calving rates. As there was no significant evidence of late term abortions, it is likely that the problem stemmed from a high level of failure to conceive or cycle.

In these cases, farmers will need to look carefully at events and conditions during the mating season. Of particular regard would be body condition of hinds (particularly if they have lactated through a dry summer), the quality of feed leading up to and during the rut, the body weight of pubertal hinds (critical to the incidence of ovulation) and the age and quality of sire stags. Another important consideration that has emerged repeatedly is to separate first calvers from older hinds at mating

and calving as there may be hierarchal behaviour reducing conception rates and calf survival in the younger hinds.

On many farms there is probably some scope for increasing the calving rate in future years by culling hinds that consistantly either fail to calve or lose their calves. The simple procedure of uddering hinds at weaning will provide a basic record of annual performance with respect to future culling.

Calf mortality appears to be an important source of reproductive wastage in red deer, although on most farms it is probably kept at a tolerable level. In order to attempt a reduction in deaths it is necessary to have an indication of the causes.

From the Waikato farms monitored during the last three seasons, a total of 120 dead calves were recorded and retrieved for post-mortem examination. Table 2 summarises the causes of death of these calves.

Table 2: Calf mortality

Cause of death	% of calf deaths
Dystocia (difficult birth)	40.2
Starvation	34.3
Misadventure	13.7
Enteritis (gut infection)	3.9
Abnormality	3.9
In-utero death	1.0
Unexplained	3.0

Dystocia was the largest single cause of calf deaths. A proportion of these were assisted calvings which, according to questionnaire data,

occurred at a rate of 2% of hinds across 130 farms. There has been considerable discussion as to the basic cause of dystocia ie.

- (i) Excessive feed intakes of hinds over spring/early summer resulting in oversized calves or extreme over-fatness.
- (ii) Lack of muscle tone and general fatness of hinds due to lack of exercise.
- (iii) Disturbance of hinds just prior to calving.
- (iv) Sire effect on calf birth weights (especially hybrids).

There is little conclusive evidence for any of these factors, however, the management options open to farmers include restricting precalving feed intakes, exercising hinds (a course of action likely to affect the farmers fitness as well), allowing hinds access to hill country prior to calving, reducing disturbance at calving (this may conflict with monitoring requirements), attempting to identify and cull stags that consistently sire problem calves and culling hinds that repeatedly have calving troubles.

There will always be disagreement among deer farmers as to the desired degree of surveillance at calving, and at which stage to intervene and assist a hind in difficulty. This is best left to the farmers own choice and experience.

Death of calves through starvation infer mismothering, although there are likely to be several additional reasons (eg. inability of the hind to lactate, non-viability of the calf, calf pirating etc). There is evidence that calf deaths through starvation are higher with first calver hinds, suggesting a degree of poor mothering ability in young hinds. Good hind/calf records and general observations at calving may help to identify hinds which are poor dams.

Poor fencing materials explain the majority of calf deaths through misadventure. Classically, affected calves have succeeded in joining

another group of hinds, only to die of starvation in the absence of its own dam.

This stresses the importance of calf-proofing calving paddocks and, if at all possible, widely spacing calving groups to reduce interference between groups. This is one area where a positive approach can be made confidently towards reducing calf mortality.

Although infectious agents (eg. enteritis, pneumonia) were not a major problem on the monitored farms, outbreaks are quite possible over calving. In such cases, farmers are advised to contact their veterinarians as soon as possible. Countering measures may well be possible, even to the extent of treating newborn calves.

### **Calf growth**

The ability of a hind to lactate and the subsequent growth of her calf upto weaning are influenced by feed quantity and quality; as for any species of mammal. Although there is probably genetic variation within a herd with respect to hind milk yields, the yield of even the best hinds will be suppressed under conditions of inadequate feed.

Unfortunately, pasture quality is often deteriorating towards the onset of the summer calving season due to the tendency for perennial ryegrass to go into a reproductive state. Although dry matter production may be high, pasture quality is generally low.

In the early days of deer farming it was believed that "rank" pastures provided useful calf shelter. However, this was often at the expense of calf growth.

Deer farmers presently accept the need to provide quality pasture. The requirements for calf shelter can be met by leaving small areas of rank grass or providing access to other natural cover. This is a danger, however, of allowing hinds access to numerous paddocks at any one time.

Experience at calving time has shown that hinds and calves can become separated, probably due to geographical confusion of both animals.

The maintenance of quality pasture requires that the reproductive development of grasses be prevented, such that the resulting sward remains in a vegetative state of growth. To achieve this, control of spring growth, either by grazing or harvesting, is important.

Under severe drought conditions in late summer, the feeding of conserved fodder to hinds and their calves, has been common, and the general consensus is that it is worthwhile.

There is a real need for careful planning of feed reserves prior to and during calving. The actual strategies employed will undoubtedly vary with each region and farm and will be influenced by the farmers experience.

### Summary

Key points concerning calving management:

- Onset of calving in November with wide calving spread possible
- Twinning rate low but herd conception rates generally high (90+%)
- Occasional herds with low calving rates require special attention at mating
- Mate and calve yearling hinds separately from older hinds
- Identify and cull hinds that consistently fail to rear a calf
- Consider carefully the feeding and exercise of precalving hinds in an attempt to reduce calving problems
- Calf proofing calving paddock fences may reduce calf losses
- Maintain high quality pastures over calving by careful planning over spring and summer
- Consider providing calf shelter in paddocks