EARLY CALVING - MANAGEMENT ASPECTS

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Substantial increases in growth rates of young red deer and related breed types can be achieved by improving the quality of pasture offered to lactating hinds. Manipulation of time of calving to advance mean calving date to better fit typical New Zealand improved pasture production patterns has become a successful, albeit investigative, routine. The implications for practical farm management are considered in the context of maintaining any advantage the technique offers the growing progeny. Special management considerations for the treated parent stock are also identified.

These observations are drawn from monitoring the progress of the progeny of the 33 hinds from 56 progesterone-PMSG treated hinds mated with melatonin-treated stags in the 1986 breeding season (Moore 1987 and unpublished data; Fennessy and Fisher, these proceedings) that successfully calved.

Fawning and lactation

The hind/PMSG and melatonin/stag regime used by Moore (Moore & Cowie 1986; Moore 1987) produced significantly earlier calving, concentrated in the 10 days from 14 October-24 October, with a significant proportion (12/33) producing twins with one set of triplets. Of these multiple births 21/27 were successfully reared, but the management required was intensive.

The mid-late October period in Otago-Southland and Canterbury at least is prone to late season south-westerly storms often in a cruel combination of cold wind with rain and snow.

Calf mortality has been strongly correlated to birth weight (Blaxter and Hamilton 1980) and the combination of early seasonal calving patterns and multiple births leave any programme particularly vulnerable to weather. Provision of shelter via natural cover, contour and wind-breaks is critical, but where practical such shelter should not impede the close and intensive observation of hinds for dystocia problems. Invermay and field reports indicate that a relatively high number of hinds bearing twins had malpresentation difficulty requiring assistance.

However the comparative performance data from early born single and twin red deer fawns as presented by Moore (1987) clearly show the productive advantages achievable.

TABLE 1: Performance data for early born single and twin red deer fawns.[1]

	Single	Twin	
Hinds fawning (n=)	20	12	
Birthweight (kg)	9.2	6.2 [2]	
Perinatal mortality (%)	5	25 [3]	
Weaning (%)	95	150	
Weaning weight (kg)	67	53a	60b
Weight of weaners per hind fawning (kg)	64	83	

[1] From Moore (1987)
[2] Triplets averaged 4.6 kg at birth - all survived
[3] Four deaths - still births; two deaths - mismothering/starvation
a Mean for twin reared as twin
b Mean for twin reared as single

Management of this now somewhat complex situation requires a balance of skilled stockmanship to avoid excessive disturbance of hinds seeking to establish strong pair bonding with two calves and low stocking rates over the immediate calving period to reduce potential mismotherings. This may be to the detriment of pasture control initially. It is therefore important to be able to establish suitable mob sizes as soon as possible after fawning to maintain the advantage sought by matching high quality spring pasture and earlier fawning dates.

The programme will invariably require preparation for hand-rearing fawns so facilities for this, and also for mothering up assisted births should be in readiness and where possible away from the other routines of seasonal velveting and pre-calving preparation of the other later breeding mobs.

It is worth emphasising however that this work is still experimental, and that PMSG induction of twinning is only reliable for hinds that are treated for calving about 6 weeks earlier than normal. Hinds treated similarly 3 weeks later showed no incidence of multiple births.

By weaning (in March) early born male fawns (inclusive of multiple births data) averaged 60.2 kg, 9.9 kg ahead of a comparable group born at the usual times (50.3 kg) (15 Nov-2 December). Calf growth rates during late lactation January-March were similar (333 g/day early born, 346 g/day normal) indicating the advantage in weaning weights is derived from the longer period of lactation on better pasture initially.

Table 2 presents the generalised patterns of liveweight gain for the group as a whole, not corrected for birth rank.

TABLE 2: Trends in growth performance data by season for early and normal red deer male fawns.

Season	Duration (days)	Growth rate (g/day)		Mean liveweight at period end	
		Early	Normal	Early	Normal
Lactation	140 (early) 110 (normal)	380	410	60.2	50.3
Weaning					
Autumn	51	237	172	72.3	59.1
Winter	116	142	88	88.8	69.4
Spring/summer	109	125	271	102.5	96.5

The implications to be drawn and further investigated are that early fawns show less effect of weaning and separation stress than the normal controls and under good winter feeding (quality pasture and supplementation) to encourage growth continue to show appreciable weight gains. Spring/summer growth patterns are complicated by spike growth, casting, the growth rates of "bolters" and perhaps earlier permanent incisor eruption. It would appear that while appropriate pre-Christmas slaughter weights can be achieved some animals may show reduced growth rates in a period where normal red rising yearlings show appreciable gain.

Spike and velvet regrowth - bolters
Of the 19 October born males, 5 showed pedicle development by May with 6 further classified as having prominent bumps at the pedicle site. Fennessy and Suttie (1985) have demonstrated that pedicle initiation tends to occur at a threshold body weight irrespective of age or season of the year. Within the group animals with significant pedicle development were all (bar one twin) in excess of 70 kg with those exhibiting only "bump" development some 6 kg lighter. By October these 6 now averaging 94 kg had hardened and cleaned antlers, and within 2 weeks cast and began to develop 2 year old style velvet heads at 12 months of age. These were ultimately harvested at ≈ 50 days velvet growth yielding 0.6 kg of saleable velvet of C grade ($115/kg) contributing an extra $74 per animal on average in income.

Puberty weights in March are not known at present.

Those later stags that grew pedicles later, hardened and cleaned during November but did not cast.

It is tempting to suggest that combining an early autumn-winter potential for growth with good feeding in early born calves may provide an additional profitable return prior to venison production in late January. Further monitoring is required to determine whether these animals maintain their weight advantage and velvet potential as two year olds, or if they behave similarly to the described bolter growth patterns.

Behaviour in some early born males as yearlings has been quite anti-social with aggression in handling and within herd dominance and fighting (R.W. Tibbotts pers. comm). As yearlings develop, this behaviour will be monitored further. It may be a consequence of treatment, or coincidental but care and a measure of respect should be maintained in yarding situations at least.

Melatonin treated stags
Treated stags exhibit rutting and herding behaviour during February-March should be run separately from untreated stags to avoid injury risk through fighting and reduce the possibility of heat stress through over exertion and lack of shade. Access to a good water supply is also critical. Some older stags under melatonin treatment have also been noted as difficult to handle where previous history suggests no problem. Good weight gains are possible post-rut during May and stags should be fed well during this period to take advantage of the potential for an early velvet harvest. Most treated stags will continue to gain weight over winter and may show a mild rut between the July-August velvet harvest, cleaning and velvet growth at the normal time (Webster, pers. comm). Rapid and dramatic coat changes may appear cosmetically unusual but present no particular management problems in our experience although there have been suggestions of problems in the UK with cold stress in treated animals.

Conclusions
The area of greatest risk in early calving management is the concentration of calving into a shorter period prone to unsettled weather. Therefore management must be conscious of the need for shelter and the requirement for careful intensive stock management. While this may be contrary to a low cost low labour input sought by some deer farmers, the advantages of better pasture utilisation, less risk of late season calving problems and a more profitable return, particularly if live sale at weaning on a weight related basis is desired, warrant further large scale investigation. In late summer drought prone areas, an earlier calving will also allow weaning

at an earlier date enabling cost savings to be made where supplementation is often required during late lactation.

References

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