

# FUNDAMENTAL DEER MANAGEMENT

Irrespective of the scale or type of deer farming, or the vast array of attitudes to deer handling and behaviour, good production targets can be set and achieved. This applies to live sales, venison or velvet antler production where we can predict realistic goals and responses for appropriate management that is easily learnt and implemented.

However, successful deer production requires management that differs in many respects from that of sheep and cattle. An understanding of these differences is the fundamental key to deer farming. This article, originally prepared for 1986 Deer

Expo at Whakatane by Tony Pearce, technical officer, deer research unit, Invermay Agricultural Centre, outlines a basic yearly management schedule and highlights areas where farmers' input creates either reward or disaster.

The research data and the schedule have their origins in an intensive deer farming system based on Red deer where increasing production is the aim of farming management.

This is the second part of a two part article. The first part appeared on page 45 of the February 1987 issue of TDF.



## Seasonal feeding requirements

Allocation of feed to farmed deer to maximise the annual growth patterns demands an understanding of energy requirements of deer. Good management fits these to local conditions of pasture production.

The year can be considered in four periods:  
 Autumn 65 days March — May (rut)  
 Winter 100 days May — August  
 Spring 100 days September —

December (velvet production - pregnancy)  
 Summer 100 days December — March (lactation)

Requirements for maintenance by season are given in Tables 4 and 5. Comparisons are made with the standard stock unit (55 kg ewe rearing 1.1 lambs.) The metabolisable energy requirements (ME) of the table are best interpreted as "feed units". Feed units can thus be converted to kg of DM/day of pasture or supplementary feeds by use of feed value tables. Thus 1 kg DM of typical quality pasture contains approximately 11 MJ/ME or 11 "feed units" of energy.

The differences in requirements between sheep/cattle and deer are readily apparent. Fitting these requirements at moderate stocking rates, typical of intensive deer farming (12 su/ha), to pasture growth profiles, pinpoints times of pasture surplus or scarcity and indicates where management must adjust feed demand periods to pasture supply.

Figure 1 represents the on-farm situation for adult deer grazing typical improved pastures. Feed requirements are superimposed on an average yearly pasture growth profile.

### Points to note

- Massive spring summer surplus. Management must preserve quality of pasture for young stock ▶

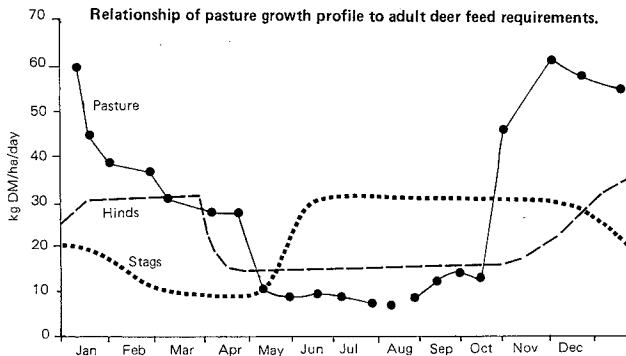
TABLE 4: Metabolisable energy (ME) requirements and stock unit equivalents for Red deer

	Autumn	Winter	Spring	Summer	Annual stock unit
<b>Stags</b>					
3 to 15 months	16	19	27	26	1.4
15 to 27 months	24	28	31	30	1.8
Older	19	35	42	38	2.2
<b>Hinds</b>					
3 to 15 months	15	18	22	21	1.2
Older	23	22	24	47	1.9
<b>Ewes</b>					
	13	10	28	11	1.0

TABLE 5: kg DM Pasture/head/day

	Autumn	Winter	Spring	Summer
<b>Stags</b>				
3 to 15 months	1.5	1.8	2.4	2.6
15 to 27 months	2.2	2.5	2.8	2.9
Older	1.7	3.1	3.9	3.8
<b>Hinds</b>				
3 to 15 months	1.5	1.8	2.5	2.6
Older	2.2	2.9	3.4	4.2
<b>Ewes</b>				
	1.1	0.9	2.5	1.0

Fig. 1 Relationship of pasture growth profile to adult deer feed requirements.



growth and lactation from September — January.

- Feed deficit likely pre-rut for adult hinds. Preferential feeding or supplementation required for optimum mating performance. Pre-rut weaning will assist.
- Adult stags require high levels of supplementation post-rut and during winter. Liveweight maintenance only is possible. Intake is restricted, energy

requirements are high. High quality supplements are appropriate.

- Young stock can take best advantage of dramatic spring flush. Fast rotations and maintenance of pasture quality are priorities.
- Late autumn growth is best utilised by weaners and first calvers. Adult hinds can be restricted post-rut.

Such pasture production as energy requirement profiles suggest further areas of refining farm management and for research. Advancing mean calving date of the Red deer herd by four to six weeks would allow early lactation in late spring when pasture quality is high. A major component of Invermay research is directed to this area, involving the natural advancement of oestrus by “stag effect”, chemical advancement and synchronisation, cross breeding hybridisation with earlier calving breeds (Pere David) and investigation into artificial insemination. This research seeks to exploit the annual growth patterns in deer and complements existing work on velvet and venison production. An exciting future is ensured for farmers, processors, exporters and researchers.

For the sake of completeness a general guide to practical events during the deer farming year is provided. It is not intended to define an absolute management system but highlights the timing of basic deer farming events within the season. Individual animal health and performance require farmer input and skill in balancing feed demand and feed supply. This remains the key to performance.

# THE YEARLY MANAGEMENT

- Mating and calving of intensively farmed Red deer, pre-rut weaning, single sire mating.
- Reproductive characteristics of Red deer
  - Gestation 232 days (Hinds mated April-1 calve on November 19).
  - Cycle length 18 days (April-May)
  - Threshold puberty — hinds 70 per cent mature weight; (16 months 65-70 kg); stags 14 months.
  - Calving per cent — 80 to 95 per cent
  - Birthweight — 6 to 10 kg
  - Productive life — 10 years
  - Stag: Hind ratio — 1.50 (single sire mating)

## Management

**Early January:** Separate yearling hinds from yearling stags. Prevents bossing and mounting, and allows preferential feeding of hinds to achieve threshold mating weight.

Young stock on fast rotations leaving high residual pasture value. Growth rates 300 g/day.

**Late January:** Select breeding stags. Remove velvet antler growth. Separate from other groups to avoid unnecessary pre-rut weight loss.

**February:** Remove spiker antler growth as velvet strips. Major permanent teeth eruption occurring. Puberty onset. Top 5 per cent of yearlings of known pedigree can

be sorted for specialist mating to increase rates of genetic gain. Must be well grown (110 kg).

**Yarding of hinds and calves.** Pre-weaning programme. Sex, tag earmark and drench calves. Record udder status of hinds. Identify calves to dams. Strong pair bond exists. If Ivomec is chosen, drench. Four weeks until next drench. Three weeks Synanthic etc.) Rotational grazing, boxing of calving groups and introduction to supplements.

**Early March:** Wean, weigh. Hold calves in yards with access to good hay and water to reduce weaning/separation stress (up to one week). Drench before release into sheltered areas, highest quality feed. Run all hind groups together except yearlings. Preferentially feed to ensure as many hinds as possible conceive during first oestrus cycle.

First yearling and two year old stags at target liveweights for venison production.

**Late March:** Sort hinds into groups (50 or fewer) for single sire mating to top stags of known pedigree.

Weaners require next drench in anthelmintic programme. Vaccination for clostridial diseases.

**April 1:** Primary sires put with hinds. (First calf due November 19). Select mating groups run with spikers (1:16). Yearlings mated separately.

# 4 Planned animal health

- Good nutrition, shelter and a minimum of stress are fundamental to preventing disease in deer.
- Calves must be drenched regularly to control lungworm. Adult deer may benefit from strategic drenching.
- Vaccinate against clostridial diseases and, in some areas, leptospirosis.
- Trace element supplements may be needed in some areas.
- Buy only tuberculous-tested animals.
- Wapiti diseases are essentially the same as those of Red deer, but extra attention should be paid to tissue worm, lungworm, ryegrass staggers, copper and (in cross-breeding) calving difficulties.

## Main activities

Good nutrition, shelter and a

minimum of stress are fundamental to disease prevention. Avoid overfeeding hinds in spring but provide them with high quality feed from one week before the start of calving. A concentrated calving period should avoid late calves becoming over-fat.

Stags have relatively high maintenance requirements in winter due to their low fat reserves and poor insulation.

It is preferable to wean calves in March so that they can receive regular drenching and optimal feeding during the autumn/winter period. Shelter should be provided and their feed allowance increased during periods of bad weather.

## Anthelmintics

It is essential that calves are drenched regularly during their first autumn,

from March until June, to prevent lungworm disease. White drenches (benzimidazoles — Systemex, Synanthic, Panacur, Valbazen, Rintal) should be given at three weekly intervals and Ivomec at four to five weekly intervals (because it persists in the body for one to two weeks). Two drenches the following spring and summer ensure there is no lungworm build-up in deer which are slow to develop resistance.

Adult deer are relatively resistant to internal parasites but intensively grazed deer may benefit from two strategic drenches:

Hinds before calving and at weaning; stags at velvetting and after the rut. Alternatively, periodic faecal samples can be checked by your veterinarian for signs of worm build-up. Recently captured or imported stock should be drenched regularly for up to six months after introduction to pasture. Blood in stock should be drenched on arrival.

# T CYCLE

**April:** Weaners and yearlings continue preferential feeding. Venison production programme peaking.

**May 1:** Remove primary sires and replace with secondary sires. Combine mating groups.

**May 21:** Remove secondary sires (last calf born January 8).

Preferential feeding of elite stags before winter to recover lost condition.

**June:** Cull mature stags from velvetting mob for slaughter at optimum leanness.

Increase feeding levels for breeding and velvet stags to prevent stress and disease.

**July:** Excessive fatness in hinds can be reduced slowly to avoid potential calving problems. Preparation of stock for sale.

Postrut weaning.

Drench programme for weaners completed.

**August:** Mature stags cast antlers.

**September:** Velvet growth begins. Preferential feeding may enhance velvet production.

Sort stags into velvetting mobs based on casting dates and age grouping.

**November:** Velvetting begins. Udder check hinds and sort into calving groups by primary sires. Pre-calving drench and vaccination.

Late calvers and non-pregnant hinds run in separate groups to avoid overfeeding and production of over-large calves.

If intensive husbandry is required (eg hinds mated to Wapiti) feed intake restricted to post-partum. Hinds can be shed off when calves are three days old. Hinds should be tamed by hand feeding of supplements.

Short leafy green pasture required to provide top quality feed for high demand lactating hinds and young calves beginning to graze.

**Late December:** Yard some calving groups. Tag if required for performance recording. Combine groups to assist grazing management.

Two year old velvetting either Korean or Taiwanese grading according to buyer advice.

**Late January:** Yard all calving groups. Tag and record secondary sire calves. Udder check hinds to record reproductive performance. Weigh and note potential cull hinds for sale in early March.

## Planned animal health

To complement the management schedule a deer health management programme has been prepared by Colin Mackintosh, research veterinarian at Invermay and forms the basis of the following information.

(See above)

## BACK TO BASICS

### Vaccinations

#### Clostridial diseases

Clostridial diseases can occur in deer and it is wise to vaccinate against them. Vaccinate calves with two doses four to six weeks apart in autumn. Adult stock should receive an annual booster; stags at velveting and hinds either pre-mating or pre-calving.

#### Leptospirosis

Leptospiral vaccines (*hardjo*, *pomona*) are advisable in areas where dairy farming and pig-keeping are common. They can be administered at the same time as clostridial vaccines.

### Trace elements

Selenium, copper, cobalt and iodine are the most commonly required trace-elements. Consult your veterinarian for advice. Supplements can be added to drenches, injected or topdressed.

### Tuberculosis

Only buy tuberculosis tested animals. It is also advisable to quarantine bought in or captured deer for the first 30 to 60 days and repeat the Tb test before introducing them to an existing herd.

### Diseases of Wapiti

The diseases of Wapiti are essentially the same as those of Red deer.

However extra attention should be paid to the following problems.

#### Tissue worm

Wapiti, especially those originating from Fiordland, are more likely to carry the tissue-worm (*Elaphostrongylus cervi*). This is usually not serious but it occasionally causes nervous signs if the worm gets into the brain or the spinal cord. Infected animals can be detected by examining faecal samples. Treatment is difficult and advice should be sought from your veterinarian.

#### Lungworm

Our experiences at Invermay lead us to suspect that Wapiti are more susceptible to lungworm infection (*Dictyocaulus viviparus*) than Red deer and do not develop natural resistance as readily. Consequently, in addition to drenching calves regularly in their first autumn they should also be drenched periodically (every six to eight weeks) during the following spring, summer and autumn until they are 18 months old.

#### Imported Wapiti

Recently imported Wapiti should receive regular anthelmintic treatment for six months after their arrival and have faecal samples examined periodically for a further six to twelve months. Some of these animals have never been exposed to high levels of lungworms and gastrointestinal parasites in their environment until grazed on pasture in New Zealand.

#### Ryegrass staggers

Canadian Wapiti are particularly susceptible to ryegrass staggers

(RGS). Affected animals develop head and body tremors and, if driven, they become unco-ordinated, fall over and thrash on the ground. New Zealand Wapiti-type and hybrid animals appear less susceptible. The disease is caused by a fungus growing inside the stems of certain ryegrass cultivars. This fungus gives the plant resistance to Argentine stem weevil but over the summer/autumn period it produces toxins that cause brain damage in most domestic animals, resulting in RGS. This damage is reversible if the animals are removed from dangerous pasture immediately and fed on alternative food such as concentrates and hay. Otherwise the damage becomes permanent, resulting in chronic tremors.

Affected deer should be moved very quietly to prevent them having seizures and injuring themselves. Prevention is by sowing paddocks with 'endophyte-free' ryegrass or other grass species.

#### Calving difficulties

When using Canadian or large New Zealand Wapiti for cross-breeding with Red deer or hybrids you can expect a higher incidence of calving difficulties. These can be minimised by ensuring the hinds are as well grown and large framed as possible, and avoiding over feeding them in spring. A tight calving period is also preferable. It may be desirable to use the Wapiti for only the first cycle and then use a Red 'chaser' bull thereafter.

#### Trace elements

There is some evidence that Wapiti have a higher copper requirement than Red deer. ○