Growth and reproduction of farmed fallow deer: a preliminary summary of current information

12

G.W. Asher

Ruakura Animal Research Station
Private Bag, Hamilton

Introduction

Fallow deer offer a viable alternative to red deer in a farming enterprise based on venison production. During the last 10 years pioneering farmers in New Zealand have made numerous advances in fallow deer management including pastoral grazing systems, stock handling and slaughter methods. However, while fallow deer are found throughout the world, and are a popular game animal, little is known on their biology or production levels achieved under intensive farming conditions.

This paper summarises information of fallow deer growth and reproduction obtained from farms in the Waikato and Bay of Plenty regions since 1980.

Growth

As with other species of deer of temperate origin, fallow display annual fluctuations in liveweight. This is particularly pronounced with adult bucks (Figure 1) which have been observed to lose up to 25% of their peak summer liveweight during the autumn rut, not regaining condition again until the end of winter. This is a result of hormone changes leading to increased social activity coincidental with a drop in grazing time during the rut (Figure 2). Castration removes this effect to a greater degree.

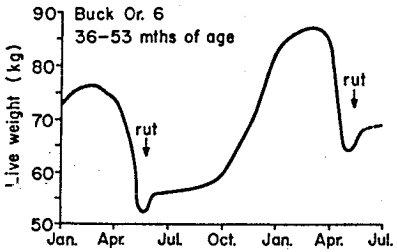

Figure 1.

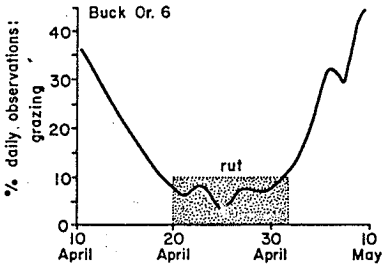

Figure 2.

Liveweights of mature does were mostly affected by pregnancy status (Figure 3) such that there was a pronounced and steady liveweight increase from spring through to fawning. It would be reasonable to guess at a 15-20% drop in liveweight at fawning (this includes fawn birth weight and placental fluids). The effects of lactation upon subsequent liveweight are unknown due to the difficulty of weighing deer with fawns at foot. On all farms monitored, does maintained static liveweights through winter.

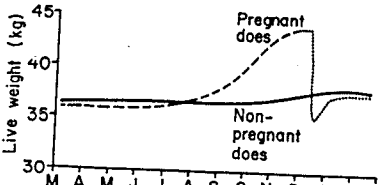

Figure 3.

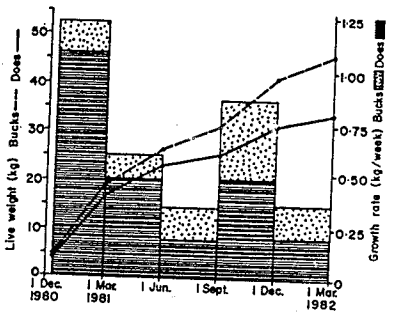

Figure 4.

The bulk of growth to mature liveweight for both females and, to a lesser extent, males occurred in the first 15 months of life (Figure 4). Four phases of growth were identified during this period and appeared to be related to the interaction of season and feed quality/availability. ie. (i) summer-autumn (Dec-May), when growth rates were highest from birth to weaning.

(ii) winter (June-August), when growth rates decreased considerably. In cooler regions or if feed supply was limiting winter liveweights would probably be static.

(iii) spring (Sept-Nov), when there was a massive increase in growth rates in response to warmer temperatures and higher feed quality.

(iv) summer (Dec-March), when growth rates were often disappointing due to dry summers (although hormonal effects may be evident at this stage in bucks).

In summary, efficient growth occurs in the first 12 months of life, thereafter, adults, particularly males, are subject to annual cycles of gain and loss of little value to venison production systems.

Reproduction

The mating season of fallow deer is triggered by decreasing day-length in autumn, designed to result in fawn drop at the time of year optimal for fawn growth and survival. However, in New Zealand, the December fawning (Figure 5) coincides with deteriorating feed quality in many pastoral situations. In comparison to red deer, the fawning season was well defined and fairly synchronous. This was an advantage as it reduced the set-stocking interval often necessary over fawn drop. Does and fawns can be safely moved onto fresh pastures by January.

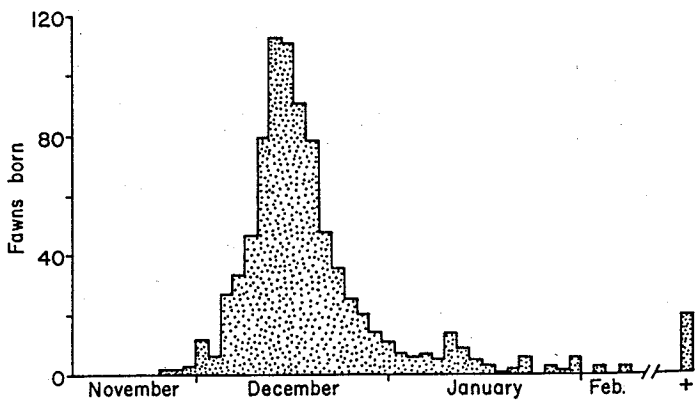

Figure 5.

The reproductive performances of does on farms monitored during fawning and non-monitored farms (questionnaire data) are presented in Table 1.

Table 1: Reproductive performance of fallow does (1980-84).

	Monitored	Non-monitored (1981,82 & 83)
Number of does	960	1024
No. fawns born	853	798
Fawning %	88.9	77.9
No. fawn deaths	161	96
Mortality %	18.9	12.0
No. fawns weaned	692	703
Weaning %	72.1	68.6
No. of abortions observed	24	-
Minimum conception %	91.4	-

While these data do not necessarily reflect the national situation, they do indicate the following:

1. Conception rates were generally high (90+%)
2. Pre-weaning fawn mortality (12-19% of fawns born) was the major source of reproductive wastage.
3. Abortions were a significant source of reproductive wastage on some farms.

The causes of fawn deaths on the monitored farms from 1980-84, as determined by post-mortem examination, are summarised in Table 2.

Table 2: Fallow fawn mortality (1980-84).

Cause of death	Number of deaths	%
Non-viability	40	24.9
Starvation	31	19.3
Dystocia	23	14.3
Misadventure	18	11.2
Gut infection	16	9.9
Throat/jaw infection	11	6.8
Lung infection	6	3.7
In utero death	5	3.1
Liver infection	3	1.9
Hypothermia	2	1.2
Abnormality	1	0.6
Unexplained	5	3.1

Non-viability (undersized, weak fawns) was the major category, accounting for 25% of recorded deaths. This was also reflected in the relationship between birth weight and fawn mortality (Table 3). Further

Table 3: The influence of birth weight on fawn mortality.

Birth weight	<3.0	3.0-3.9	4.0-4.9	5.0+
No. of fawns	94	438	281	9
No. of deaths	56	71	30	1
Mortality %	59.6	16.2	10.7	11.1

investigation of the problem has shown that first fawners (2 year old does) tended to produce lighter fawns at birth relative to their own liveweight. Mortality of fawns from first calvers was as high as 35%.

Fawn deaths due to starvation and fawning difficulties (dystocia), although accounting for 19 and 14% of fawn deaths respectively, were considerably lower than for red deer.

Death of fawns through misadventure (usually fence hangings) have been disappointingly high on some farms but were mostly overcome by techniques of fawn proofing paddocks.

Occasional outbreaks of infectious agents (enteritis, jaw infections) resulted in higher fawn mortalities on some farms in the 1983/84 season. In extreme cases, new born fawns were effectively treated with broad-spectrum antibiotics prior to showing symptoms. These outbreaks are not, as yet, predictable.

There is some evidence that abortions on some fallow farms were due to Leptospirosis infection. Several farmers have subsequently overcome the problem by treating all stock with antibiotics and the current vaccine available. Control seems to be cheap and simple, however, precautions should be made to prevent reinfection from other stock.

In summary, close attention to details of management and facilities (especially fences) is likely to improve reproductive performance of fallow does. Close shepherding does not seem to unduly upset does during fawning and provides scope for observing and treating problems as they occur.