

# GROWTH OF RED DEER IN THE WAIKATO REGION

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## INTRODUCTION



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On-farm monitoring of the growth performance of red deer was instigated in the Waikato in January 1980. One aim was to provide data on the growth of intensively farmed red deer on highly productive dairy land. A second objective was to relate growth performance to both meat production of stags and reproductive performance of 2-year-old hinds (first calvers).

This paper examines the effects of age and season on the growth of Waikato red deer. Information is also presented on the effects of mating weight at 16 months of age on the proportion of first calvers to successfully rear calves to weaning.

Deer were weighed at 6–8 week intervals and data are pooled for up to three farms. In general, the samples represent highly selected populations mainly on the basis of live weight. As such they are not intended to reflect the performance of the whole range of individuals born, but rather the productivity of typical Waikato red deer farms.

## RED DEER GROWTH

Weight for age and growth rate of weaners through their first year (fig. 1) are important as levels of performance set in that year may be reflected in growth and reproductive performance in later years.

Increases in live weight were continuous from weaning in March through to December for both sexes (fig. 1). However, stag calves were always heavier than hinds. While growth rate curves were similar for both stags and hinds (fig. 1) they illustrate that live-weight gain (kg/week) was not constant over the period from weaning in December.

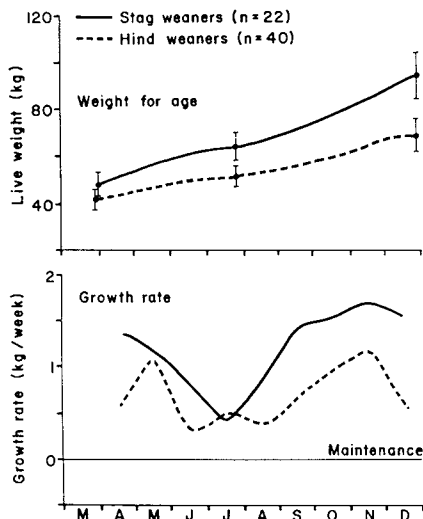


Fig. 1: Weight for age and growth rate curves for stag and hind weaner red deer — Waikato 1980.

Although growth rates were positive, there were sharp declines which troughed in late June/July followed by marked growth increases starting in late July/August. There was an indication that growth rates also declined again from December.

There are no data to relate these growth characteristics to seasonal feed availability but the following factors may have influenced declining growth rates:

- Higher energy requirements relative to voluntary or mandatory feed intake in June/July.
- Depression in feed quality and/or quantity in late summer.

Corresponding data for rising 2-year-old stags and hinds again shows absolute sex differences of weight for age but similar growth curves (fig. 2). However, these individuals declined in growth rate to near maintenance from April till September. Although there was no weight loss, live-weight gain was small (0.2 kg/week). The growth rate increase from September onwards was quite marked (up to 1.5 kg/week).

Growth rate differences between rising 1-year-olds (weaners, fig. 1) and rising 2-year-olds (fig. 2) may be a reflection of inherent growth characteristics of different aged individuals and preferential feed allocation to weaners.

The seasonal live weight of mature hinds was monitored and the growth rate curve shows that they were at or below maintenance until July/August (fig. 2).

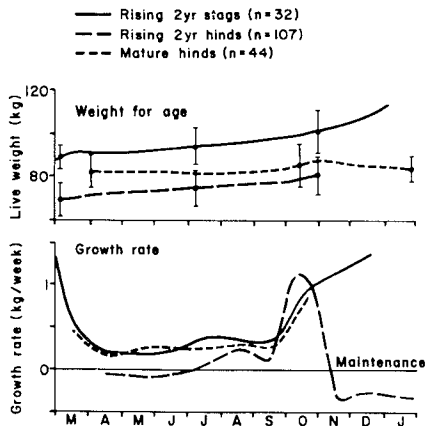


Fig. 2: Weight for age and growth rate curves for rising 2-year stags and hinds and mature hinds — Waikato 1980.

A very marked increase in growth rate was evident from mid September, which peaked in October (this could be related to foetus growth) and thereafter declined following calving. Insufficient data were obtained on mature stags for comparable analyses.

The calving performance in relation to live weight at

mating (16 months) of yearly hinds in the Waikato is shown in fig. 3.

Yearling hinds at or below 65 kg at mating (14% of those weighed) had a weaning performance of 69% as compared to 79% for yearling hinds above 65 kg.

The effect of the proportion of first calvers in the population on calving performance of red deer was surveyed in the northern North Island in March 1981 (table 1).

From that survey it appeared that yearling hinds had a similar level of reproduction to that of mature hinds with, perhaps, a slightly higher preweaning calf mortality.

## CONCLUSION

Although sex differences were observed for absolute weight for age, growth rate curves were similar for both sexes in the first and second years. But growth rate curves differed between rising 1-year-old and rising 2-year-old deer. This may have been due to characteristics of age groups and preferential feeding of weaners.

For weaners, there were depressions in growth rate in June/July and December. In contrast, for rising 2-year-olds, growth was largely suppressed between April and September.

Seasonal live weight of mature hinds was affected by reproductive state.

Calving performance of yearling hinds was better than expected especially for individuals below 65 kg at first mating.

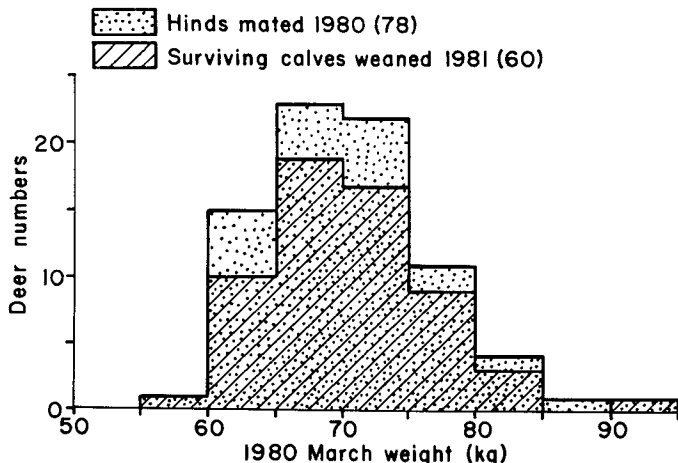


Fig. 3: Weaning performance of first calving (2-year-old) red hinds — Waikato 1980/81.

Table 1: Red deer calving performance (1981) relative to the proportion of first calvers in the population.

% yearlings in hind group	Farms	Hinds	Minimum calving %	Weaning %	Minimum % mortality
(1) 0-20%	56	2131	87.3	80.1	8.2
(2) 21-60%	25	813	88.9	82.9	6.8
(3) 61-100%	16	275	88.4	77.8	11.9
Total	97	3219	87.8	80.6	8.2