

THE BEHAVIOUR AND GROWTH OF DEER ON IMPROVED PASTURES

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INTRODUCTION

The farming of red deer as a commercial enterprise is a recent development in New Zealand agriculture. Most of the established deer farms are run under extensive conditions, the farm being sited on the least arable land within the particular farm. In October, 1973, a deer farm was established at the Invermay Agricultural Research Centre to study the performance of red deer run under intensive conditions on improved pastures. Research is being conducted in three areas, namely, handling, growth and reproductive performance of the deer. This paper presents a summary of the research findings in the first year of the study.

EXPERIMENTAL ANIMALS AND DEER FARMS

The experimental herd at present consists of 88 red deer hinds of unknown age, 8 stags of two years or older (two of which are vasectomized), and 68 calves. These deer are run on two farms, the pasture in both being a dominant sward of mature perennial ryegrass and white clover. Farm A is sited on lowland, and Farm B is on hill country. Table 1 summarizes the details of the two farms.

HANDLING OF THE DEER

One of the major objectives of the research work has been to examine methods of handling the deer. These studies commenced in October, 1973, when 92 red deer hinds were transported from West Dome Station, Mossburn, to Invermay, a distance of 240 km. The transport used was a large truck and trailer fitted with solid sides and top. Two hinds died within a day of transportation, probably from trampling in the truck, but their poor condition undoubtedly contributed to their deaths. In April, 1974, 20 five-month-old calves were transported to Invermay from Mossburn with little trampling and no mortalities.

TABLE 1: DESCRIPTION OF THE TWO DEER FARMS

	<i>Area (ha)</i>	<i>Approx. Annual Dry Matter Production (kg/ha)</i>	<i>Paddock Size (ha)</i>	<i>Natural Cover</i>
Farm A	8.0	10 000	8×0.7 2×1.3	None
Farm B	16.3	8 000	1×8.0 remaining area yet to be fenced	Manuka scrub over approx. 20% of area.

The deer, prior to their arrival on Invermay, had been "fence trained" and had seen the occasional tourist, but their handling by man was minimal. Subsequently they have been frequently handled, particularly during calving, and have quietened down appreciably. The calves born on Invermay in December, 1973, can almost be regarded as being domesticated. The handling of the deer, particularly on Farm A, has benefited from the following observations:

- (1) Gates: These should preferably be in a corner, and adjacent to other paddocks in which deer are run.
- (2) Internal fencing: Wire mesh is better than single wires, since the single-wired fence is not satisfactory in containing either calves or adult animals.
- (3) Shifting animals: This is best accomplished by dogs but is possible with men alone or through grazing management.
- (4) Newborn calves: These can be weighed and tagged with little effort since they do not move when approached by man; but finding the calves can be difficult.
- (5) Yards: Solid walls are required, and with sharp corners eliminated.

GROWTH OF YOUNG DEER

Two experiments are being conducted to examine the growth of red deer from birth to 2 years of age. The objectives are:

- (1) The effect of stocking rate (10–14 calves/ha) on rate of growth of both male and female deer, with the males

slaughtered at six-monthly intervals and measurements made on carcass composition and flavour characteristics. The two rates of stocking are aimed at keeping the sward either 0 to 5 cm or 5 to 10 cm in length.

- (2) The rate of growth of male calves raised on feedlot and fed a ration of 82% digestible O.M. and 19.6% protein content (55:35:10 of barley, dehydrated lucerne and linseed meal, respectively).

Preliminary results for Experiment 1 are shown in Fig. 1. Growth rates from birth to weaning have been 318 and 287 g/day for males and females, respectively. From weaning (105 days) until 210 days of age growth rates in both males and females slowed to 83 g/day. In the early part of this experiment there were no differences in rate of growth between the two rates of stocking.

In Experiment 2 and for comparison with the above growth rates the feedlot deer have grown at 90 g/day during the last half of June.

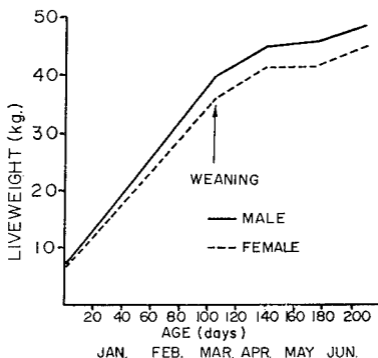


FIG. 1: *Growth rate of male and female deer calves.*



Deer after calving at Invermay.

REPRODUCTIVE PERFORMANCE OF THE DEER

Results are available for one calving and one mating season. During calving the hinds were run in four paddocks on Farm A at a stocking rate of approximately 22 hinds/ha. The hinds were observed for most of the daylight hours during December, and the paddocks were inspected once or twice daily to weigh and eartag the newborn calves.

The calving period was from November 29, 1973, to February 1, 1974, with 64 calves born to December 23 and 3 in the remaining period (Fig. 2). The calving percentage was 76% (67/88), but the herd contained some yearling hinds. The relatively short calving period is very similar to the length of the oestrous cycle of deer (18 days), which suggests conception rates are high.

Calf mortality to weaning was 27% (18/67), and comprised one still birth, six deaths from unknown causes (five calves less than four days old; one calf 46 days old) and the remaining eleven calves, all less than four days old, dying from severe injuries. These injuries were inflicted by hinds beating the calves, the attacks characterized by the hind approaching a calf, seizing it with her teeth, and flailing it with her forelegs. It appeared that only a few of the hinds in the herd displayed such behaviour. It is possible that the lack of shelter and high stocking rate of the hinds contributed to these mortalities, and the effect of these factors will be tested in subsequent calvings.

Mating commenced in April, with 15 hinds and 3 stags being joined on Farm A and 73 hinds and 5 stags on Farm B. The

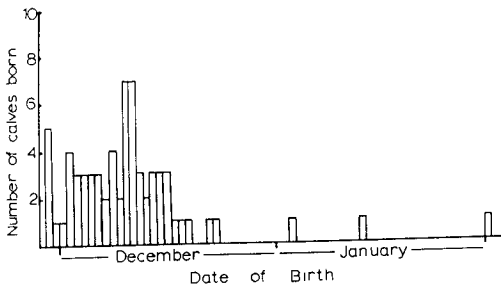


FIG. 2: *Number of calves born each day.*

herd on Farm B was kept under observation for most of the daylight hours, with intermittent observations made on Farm A. On Farm B one stag quickly became dominant, gathered the hinds into a harem, and chased away the other stags. Although several of the subordinate stags attempted on occasions to infiltrate into the harem, they were always quickly repelled by the dominant stag. The dominance of one stag highlights the need for stags to be semen tested immediately prior to the commencement of mating, for an infertile dominant stag could have disastrous effects on the reproductive performance of a deer herd. Sire-sine harnesses similar to those used to record mating of sheep were not successful in detecting oestrus in deer.

CONCLUSIONS

These early results from the experimental programme show that red deer can be farmed under intensive conditions. The level of production they can be farmed at has yet to be evaluated. It is known that they can be easily shifted from one paddock to another, and into the yards. The rate of growth of the young calves is very high considering that calving in December means the loss of the best quality spring feed. However, the rate of growth during the winter months appears to be depressed and independent of the type of feed consumed. The reproductive performance of the herd also has certain problems, the most

important being the high mortalities due to hinds attacking newborn calves. The dominance of one stag of low fertility during mating could affect the calving percentage. The contribution of these aspects to deer farming, how they may change as the animals become more domesticated, and the possibility of controlling and hence being able to manipulate production in deer, will influence the successful farming of red deer.

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