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The production characteristics of fitch (*Mustella putorius*)

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ABSTRACT

The potentially high levels of productivity of fitch – 2 litters per year, 8 young per litter – is rarely achieved in practice. Annual litter rates vary from 0.9 to 1.7 per female kept, due to high rates of false pregnancy (up to 90%). Kit mortality can reach high levels (to 50%). Young fitch grow rapidly and reach mature body size at 20 weeks (males 1400 g; females 800 g). Subsequent fluctuations in body weight are attributable to adipose depositions.

Keywords Fitch; *Mustella putorius*; productivity; litter rate; litter size; kit mortality; growth

INTRODUCTION

Fitch are bred and raised in wire mesh cages for their high quality fur pelts. These pelts are presented for sale in a dried state at fur auction houses in Europe and North America. The primary end use of the product is in the manufacture of fur garments.

Fitch farming is a new enterprise in New Zealand (Yerex, 1981). Already some 3500 imported stock along with captured feral New Zealand animals have added to the gene pool.

This paper examines the characteristics of *Mustella putorius*, using data from a number of New Zealand fitch farms to illustrate the main features of their production. In Tables 1 to 6 the farms labelled A, B, C . . . etc. are not necessarily the same farms.

PRODUCTION CHARACTERISTICS

Increasing daylight hours induce breeding in mature fitch in September and October. First litters are born during November and December and weaned in 6 weeks. Females then return to oestrus and a varying proportion are capable of rearing a second litter in February and March. Decreasing day length in late summer and autumn induces a non-breeding state until the following spring. Fur growth is enhanced by short days and pelts are ready for harvesting from first litter kits during late May through to July. Second-litter kits are not ready for pelting until July/August.

Stock imported from the Northern Hemisphere in November exhibit an 'out-of-season' breeding during March-April before entering a normal cyclical reproductive season in step with local stock the next September and October. Generally the last breeding of the 'local' season is in February.

The general reproductive physiology of the fitch is described in Table 1. Production levels are potentially high – 8 kits per litter, 2 litters per year per female, but these levels are rarely achieved in practice.

TABLE 1 Reproductive physiology of fitch.

Breeding season	Sept – Feb
Age at first breeding	9 to 10 months
Ovulation	Induced by mating
Oestrus	Continuous if unmated
Gestation	42 days
No. litters per year	Max. 2
No. kits per litter	3 to 14 (8 av.)

TABLE 2 Litter rate of females.

Farm	No. Females	No. Females bearing 1 litter	2 litters	Annual litter rate
A	32	18	14	1.4
B	3	1	2	1.7
C	180	165	0	0.9
D	80	70	10	1.1
E	120	100	20	1.2
F	350	262	88	1.3
G	7	6	1	1.1
Mean		89	19	1.2

Litter Rate

Table 2 contains data from a number of farms in New Zealand showing the numbers of mature breeding females producing 1 or 2 litters each year. The overall litter rate per year on each farm is at considerable variance from the maximum of 2 litters per female per year which is possible under ideal conditions. Spread of onset of oestrus and matings and in many cases high levels of false pregnancy (Table 3), all contribute to the lower than optimum level of litter rate in females.

Litter Size

Northern Hemisphere data (Burberry, 1982) suggests that litter size varies from 3 to 14 with an average of 8 kits per litter. First litters are generally larger than

TABLE 3 Whelping and false pregnancy rates in first-litter females.

Farm	No. mated	% Whelping	% False pregnancy
A	350	97	3
B	100	70	30
C	80	98	2
D	65	46	54
E	20	10	90
F	180	92	8
G	32	91	9
Mean		86	14

second litters. New Zealand data (Table 4) agree with this, although if the very high levels of farm G are excluded, the corresponding mean figures are 6.8, 4.6 and 6.4 kits weaned per female whelping at first litters, second litter and per annum, respectively.

TABLE 4 Number of kits weaned for 1st and 2nd litters and per annum, per female whelping.

Farm	First litter	Second litter	Per annum
A	7.7	2.0	5.6
B	6.6	4.5	6.0
C	8.1	0.0	7.4
D	6.0	5.0	6.5
E	5.2	0.0	5.2
F	2.5	0.0	2.5
G	8.0	7.0	9.5
Mean	7.4	6.2	7.8

Kit Mortality

Kit mortality is one of the single biggest factors contributing to poor production. Table 5 shows this has varied from 1% to 50%. High death rates seem associated with the level of experience of the farmer as it is usually worse in the first year of the enterprise than subsequently. Common causes of death in the first few days of life are falling through cage floors and failure of initiation of lactation in females.

TABLE 5 Mortality in kits at birth (0-3 days) and to weaning (> 3 days).

Farm	No. born	% Mortality birth	% Mortality weaning
A	1548	4.0	2.5
B	2258	4.3	5.3
C	862	1.2	3.5
D	56	10.7	50.0
E	255	5.9	1.2
F	56	0.0	3.7
G	532	2.8	11.9
H	270	25.9	5.0
Mean		4.2	4.6

Nutritional deficiencies, ingestion of large amounts of vegetable material and starvation due to hardened milk glands (mastitis) are the common causes of death up to weaning.

Kit Growth

Size has a major influence on the final returns from pelt sales. Therefore young animals must be grown at a high rate.

The growth curve of male and female fitch on one farm (Fig. 1) shows a sigmoid shape with mature body size being reached at 20 weeks. The rapid rise in body weight after 20 weeks is associated with the laying down of fat tissue in the autumn-early winter. These data are consistent with the growth curves of fitch in Read and Wallace (1983); Hahn and Wester (1969), although the final live weights are significantly superior.

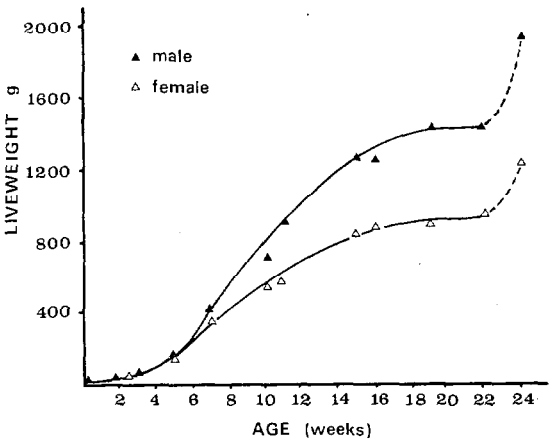

FIG. 1 Growth of kits to 24 weeks.

Conclusions

Fitch have the potential for high levels of productivity on some, but not all, New Zealand farms. The high levels of false pregnancies and kit mortality and lower than normal litter size all contribute to lower than optimum levels of productivity, although these should increase with greater experience of the farm manager.

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