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# Early growth and reproduction of exotic sheep breeds — a preliminary report

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## ABSTRACT

Growth and hogget reproduction were recorded in Texel, Oxford Down (Oxford) and Finnish Landrace (Finn) purebreds and crosses born in 1985, 1986 and 1987. Border Leicester and Suffolk cross hoggets were included in 1986 and Suffolk cross, Coopworth and Perendale hoggets in 1987. Amongst the purebreds, Oxfords were heavier at weaning than Texels and Finns (100: 92: 89), and as yearlings (100: 93: 88). Amongst the crossbreds born in 1986, Oxfords were heaviest at weaning with Texel, Border Leicester and Suffolks intermediate and Finn crosses the lightest (100: 97: 96: 95: 92). The yearling weight rankings for these 5 crosses were 100: 98: 94: 93: 88.

Following entire joining in May after treatment with progesterone impregnated controlled internal drug releasers and pregnant mare serum gonadotrophin, the number of lambs born per hogget joined were, for 1985 and 1986 born purebreds, 1.40 and 1.11 in Finns; 0.76 and 0.96 in Texels and 0.21 and 0.51 in Oxfords. Amongst the 1986 born crosses, Finns ranked highest (1.31 lambs per hogget), Border Leicester, Suffolk and Texel crosses were intermediate (0.61 to 0.65) and Oxfords lowest (0.44).

These findings highlight the role of Oxfords for early growth rate and Finns for exceptionally high early reproduction rate.

**Keywords** Finnish Landrace; Texel; Oxford Down; hogget reproduction; growth; exotic sheep.

## INTRODUCTION

The genetic base of sheep in New Zealand is narrow. The importation of Finnish Landrace (Finn), Texel and Oxford Down (Oxford) embryos in 1984 was undertaken to widen this genetic base. The multiplication and quarantine programme has been undertaken at Somes Island near Wellington (Tervit *et al.*, 1986) and Hopu Hopu Animal Quarantine Station near Hamilton (Clarke *et al.*, 1988). This preliminary paper describes the growth and reproductive performance of ewe progeny in this programme.

## MATERIALS AND METHODS

### 1985 Born Hoggets

The purebreds were the result of embryo transfers into Coopworth recipients on Somes Island (Tervit *et al.*, 1986). The resulting lambs were transferred to Hopu Hopu Animal Quarantine Station when

weaned off concentrates and onto pasture at 4 to 6 months of age. All subsequent lambings took place at Hopu Hopu.

### 1986 Born Hoggets

The purebreds were derived from embryos in Coopworth recipients and hogget lambings. Romney and Coopworth ewes were used to generate exotic crossbreds using ram lambs and Border Leicester and Suffolk crossbreds using artificial insemination.

### 1987 Born Hoggets

The exotic purebreds arose from natural matings, artificial insemination and fresh embryo transfers. Natural matings and artificial insemination were used to generate exotic crossbreds and Suffolk x Romney, Coopworth and Perendale lambs.

### Management

Within each year of birth, all ewe lambs were run as 1 mob from birth, with the exception of hogget

**TABLE 1** Weaning and yearling live weight of purebred Oxford, Texel and Finns born in 1985, 1986 and 1987.

Breed	No. in group	Weaning weight			Yearling weight	
		1985	1986	1987	1985	1986
Oxford	22	33.9	23.8	25.0	52.2	46.8
Texel	115	31.2	20.9	23.7	46.7	45.2
Finn	197	33.7	20.3	20.0	47.5	40.0

**TABLE 2** Weaning and yearling live weight of exotic and local crossbreds born in 1986.

Genotype	No. in group	Weaning weight (kg)	Yearling weight (kg)
Oxford cross	99	22.0	58.3
Texel cross	102	21.4	54.6
Border Leicester cross	66	21.1	54.3
Suffolk cross	100	20.8	56.9
Finn cross	100	20.2	51.2

mating time. All hoggets were joined in single sire groups following oestrous synchronisation using progesterone impregnated controlled internal drug releasers and 300-600 iu pregnant mare serum gonadotrophin. Joining lasted for 23 d to permit return matings.

## RESULTS

Purebred Oxfords were the heaviest at weaning and as yearlings (Table 1). Collectively, the data show that as weaners and yearlings Texels are about 7% lighter and Finns 11% lighter than Oxfords.

Oxford crossbreds born in 1986 were the heaviest at weaning and as yearlings (Table 2). Texel, Border Leicester and Suffolk sired ewe lambs ranked intermediate with Finn crosses the lightest. Suffolk sired lambs grew fastest post-weaning and weighed only 2% lighter than Oxford sired lambs as yearlings. Suffolk x Romney and Coopworth ewe lambs born in 1987 were 3 to 4% heavier at weaning than Oxford x Romney and Texel cross lambs and Perendale lambs were 5% lighter (Table 3).

Purebred Finn hoggets produced the most lambs (Table 4). This advantage was largely because of a higher prolificacy. Finn x Coopworth lambs also excelled in early reproduction with 1.0 lambs born/hoggets joined. There was less variation in reproductive performance between crossbred genotypes born in 1986 (Table 5). Purebred Finns, Texels and crossbred Finns produced the most lambs.

## DISCUSSION

These results highlight the superior growth rate performance of purebred Oxfords compared to purebred Texels and Finns. This superiority was also

**TABLE 3** Weaning weight (kg) of 1987 born ewe lambs.

Genotype	No. in group	Weaning weight (kg)
Suffolk x Romney	28	21.2
Coopworth	11	21.0
Oxford x Romney	45	20.4
Texel cross	400	20.3
Perendale	16	19.4

**TABLE 4** Hogget reproduction in 1985 and 1986 born purebred exotics.

Genotype	HJ <sup>1</sup>	HL <sup>1</sup>	LB <sup>1</sup>	LB <sup>1</sup>
		HJ	HL	HJ
Finn	64	0.62	2.1	1.30
Texel	67	0.64	1.3	0.84
Oxford	21	0.24	1.0	0.24

<sup>1</sup> HJ Hoggets joined; HL Hoggets lambing; LB Lambs born.

**TABLE 5** Hogget reproduction in 1986 born exotic crossbreds.

Genotype	HJ <sup>1</sup>	HL <sup>1</sup>	LB <sup>1</sup>	LB <sup>1</sup>
		HJ	HL	HJ
Finn	48	0.79	1.7	1.31
Border Leicester	43	0.53	1.2	0.65
Suffolk	46	0.50	1.3	0.63
Texel	46	0.54	1.1	0.61
Oxford	50	0.34	1.3	0.44

<sup>1</sup> HJ Hoggets joined; HL Hoggets lambing; LB Lambs born.

evident amongst the exotic crossbreds. However, as weaners, Suffolk x Romney and Coopworths appeared to be heavier. Texel cross and Border Leicester cross animals had similar growth performance. Collectively, these live weight data are in line with expectations from overseas findings (Wolf *et al.*, 1980; Kempster, 1987). Other New Zealand data indicates that Texel, Finn and Oxford sires offer advantages over Suffolk and Border Leicester sires as producers of heavy lean crossbred carcasses (Clarke *et al.*, 1988).

The Finn is renowned for its high reproductive rate from an early age. The current findings support this for the pure and crossbred hoggets.

In summary, these results indicate an important role for Texel, Oxford and Finn sires for lamb meat production in New Zealand.

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