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Genetic Parameters for Sheep Production Traits

Estimates from the Literature

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Introduction

Knowledge of genetic variation and covariation among traits is required for both the design of effective sheep breeding programs and the accurate prediction of genetic progress from these programs. Breeding objectives for Australian sheep enterprises are becoming increasingly complex. The simplified objectives that include wool weight and average fibre diameter for wool sheep and body weight, fat depth and muscle depth for meat sheep are no longer appropriate for many enterprises. The increasing economic value of meat relative to wool and the increased importance of lamb and sheepmeat production from Merino flocks in recent years (Banks 2002) mean that more traits are contributing to the overall objective and profit of many sheep enterprises. The increased value of meat also enhances the importance of reproduction traits, both in Merino and maternal meat breeds. The inclusion of disease resistance (Eady *et al.* 2003) and quality traits for both wool (Mortimer and Atkins 1993) (Brown *et al*. 2002b) and meat (Fogarty *et al.* 2003) are also being advocated along with feed intake (Lee *et al.* 2001) and behaviour traits that affect production (Lambe *et al.* 2001).

Accurate estimates of genetic parameters (heritability, genetic correlations and phenotypic variance) are required to develop effective and comprehensive breeding objectives that encompass these diverse traits. There are also diverse sheep populations in Australia that may have different parameters. Sheep evaluation programs and associated software have been developed over the years, with LAMBPLAN now widely adopted in the Australian lamb industry following its launch in 1989 (Banks 1990). LAMBPLAN used BVEST for estimation of breeding values (Gilmour and Banks 1992) during its first decade and it has recently been enhanced by development of OVIS software (Brown *et al.* 2000) to provide a greater range of traits and indexes for meat and wool objectives (Brown *et al.* 2001).

A review of genetic parameters for a comprehensive range of sheep production traits was undertaken almost a decade ago to compile the parameter matrix for LAMBPLAN (Fogarty 1995). Two more recent reports have compiled estimates from Australian Merino data with emphasis on wool (Ponzoni and Fenton 2000) and meat (Clarke 2002) traits. Our report includes parameter estimates for production traits from the papers referred to in these latter two reports. However they also cover many additional traits, especially relating to physiology, skin, wool, visual and quality characteristics that are beyond the scope of our report.

This report has been compiled to update the genetic parameters available for a comprehensive range of production traits in sheep. It is being used as the basis for a critical review and summary of the parameters that will be published elsewhere. In addition it will be used to examine the predicted outcomes of breeding programs and their sensitivity to the range in parameters and especially genetic correlations between the various types of production traits.

Scope and Traits

In the past decade there has been extensive development of statistical procedures for estimating genetic parameters. The estimates compiled in this report were generally derived from mixed model REML procedures, with Bayesian estimates also included. The period covered was generally from 1994 to 2003. Some references from (Fogarty 1995) have been included where they have particular relevance to Australian sheep populations and where

REML estimation procedures were used. The focus of this report is on traits that are important to Australian wool and sheepmeat production systems (excluding milk production).
The report covers the considerable overseas literature on sheep genetic parameters for traits and/or breeds that may be relevant to the Australian sheep population and where they are REML (or Bayesian) estimates from large data sets. Where parameter estimates in different publications were identified as being derived from the same or similar data only one report, generally the most recent, has been included.

Heritability

Published estimates of heritability are included in chronological order in the tables for wool traits (Table 1), growth traits (Table 2), meat and carcass traits (Table 3), reproduction traits (Table 4) and worm resistance, fleece rot and feed intake (Table 6). Estimates of heritability for reproduction traits at various ages and using different statistical models from the same reports are shown separately in Table 5. For each of the traits in Table 1 (wool) and Table 2 (growth) the estimates have been classified according to wool, dual-purpose and meat breeds.

As well as direct heritability (h^2), maternal heritability (m^2), permanent environmental effect (c^2) and the genetic correlation between direct and maternal effects (r_{am}) are shown for studies where they have been reported. The standard errors of estimates are also shown if they have been reported. For studies reporting Bayesian estimates the mean and standard deviation are shown. The numbers of records, sires and dams involved in the analysis are shown where they have been reported. In some cases the specific values were not included in the published reports and they have been inferred from the data given or other sources to provide an approximation for the structure of the data. For reproduction traits (Table 4) the number of ewes involved is also shown. The number of years covered by the data is included to provide further information on the scope of each study. The mean value for the trait and coefficient of variation, along with breed and reference to the publication are also included in the tables. The coefficient of variation shown in the tables is based on the phenotypic standard deviation from the variance components estimation analysis, where this was reported or could be calculated. This is generally smaller than the coefficient of variation based on raw data, although this was included where no other information was available.

Correlations

Published estimates of genetic and phenotypic correlations between traits are included in the tables for wool traits (Table 7), growth traits (Table 9), meat and carcass traits (Table 10) and reproduction traits (Table 11). Estimates of correlations between various ages for the same wool traits are shown separately in Table 8. Estimates of correlations between the various trait groups are shown in the tables for liveweight and wool traits (Table 12), wool and carcass traits (Table 13), reproduction and wool traits (Table 14), reproduction traits and growth and carcass traits (Table 15), disease traits and wool or growth traits (Table 16) and feed intake, wool growth and other production traits (Table 17).

As well as genetic (r_g) and phenotypic (r_p) correlations, environmental (r_e) and permanent environmental (r_{pe}) correlations are shown when reported. The numbers of records and sires, along with breed and reference are included. The estimates of heritability (h^2) for the two traits in the correlation are also included. The heritability is from the bivariate or multivariate analyses where it has been reported, although generally estimates were only available from the univariate analyses.

Table 1. Estimates of heritability for wool traits

Estimates of heritability ($h^2 \pm$ s.e.), maternal heritability ($m^2 \pm$s.e.), permanent environmental effect ($c^2 \pm$ s.e.), genetic correlation between direct and maternal effects ($r_{am} \pm$ s.e.), numbers of records, sires, dams and years of records, mean, coefficient of variation (CV %), breed and reference

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yr	Mean	CV	Breed	Reference
Greasy fleece weight [GFW] (kg)												
Wool breeds												
15m-male	0.42 ± 0.10	-	-	-	1,527	180	-	6	-	-	Merino	(Lewer *et al.* 1994)
15m-female	0.30 ± 0.08	-	-	-	2,084	177	-	6	-	-	Merino	(Lewer *et al.* 1994)
15m	0.33 ± 0.05	0.09 ± 0.03	-	-0.23	3,830	-	-	7	-	-	Merino	(Mortimer and Atkins 1994)
5m	0.21	0.14	0.03	-0.37	5,055	190	2,231	18	-	-	Merino	(Swan and Hickson 1994)
12m	0.29 ± 0.04	0.05 ± 0.03	-	-	2,844	202	820	18	-	-	Merino	(Swan and Hickson 1994)
11m	0.32 ± 0.04	0.11 ± 0.02	0.00 ± 0.01	-0.35	2,844	-	-	20	-	-	Merino	(Hickson *et al.* 1995)
17m	0.51 ± 0.04	0.08 ± 0.02	0.00 ± 0.02	-0.36	6,553	-	-	20	-	-	Merino	(Hickson *et al.* 1995)
10m	0.58	-	-	-	2,200	162	-	4	3.43	15	Merino	(Ponzoni *et al.* 1995)
16m	0.44	-	-	-	2,200	162	-	4	4.07	15	Merino	(Ponzoni *et al.* 1995)
10m	0.38	-	-	-	2,535	141	-	3	-	-	Merino	(Swan *et al.* 1995)
Adult	0.41 ± 0.09	-	0.13 ± 0.08	-	1,636	-	-	-	3.58	-	Merino	(Woolaston *et al.* 1995)
6m	0.20 ± 0.04	0.06 ± 0.04	0.05 ± 0.04	-0.29	7,407	607	2,240	22	1.18	19	Merino	(Snyman *et al.* 1996)
10m	0.40 ± 0.10	-	-	-	1,284	68	969	2	3.37	21	Merino	(Brash *et al.* 1997)
16m	0.28 ± 0.08	-	-	-	1,209	68	969	2	5.00	18	Merino	(Brash *et al.* 1997)
10m	0.39 ± 0.03	-	-	-	6,213	300	-	6	-	-	Merino	(Li *et al.* 1999)
1yr	0.12 ± 0.01	-	-	-	33,163	1,188	25,544	18	5.88	24	Merino	(Nagy *et al.* 1999)
15m	0.23 ± 0.11	-	-	-	900	54	-	3	2.72	-	Merino	(Rose and Pepper 1999)
15m	0.35 ± 0.09	-	-	-	900	54	-	3	3.59	-	Merino	(Rose and Pepper 1999)
10m rams	0.55 ± 0.08	-	-	-	2,286	158	-	4	3.49	19	Merino	(Hill 2001)
16m rams	0.47 ± 0.08	-	-	-	2,239	158	-	4	4.21	19	Merino	(Hill 2001)
16m ewes	0.41 ± 0.06	-	-	-	2,134	155	-	4	6.07	15	Merino	(Hill 2001)
28m ewes	0.37 ± 0.06	-	-	-	2,087	155	-	4	6.65	16	Merino	(Hill 2001)
40m ewes	0.45 ± 0.06	-	-	-	2,000	155	-	4	6.99	16	Merino	(Hill 2001)
10m	0.24 ± 0.07	0.07 ± 0.03	-	-	1,801	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
12m	0.27 ± 0.14	-	-	-	635	-	-	-	3.08	13	Merino	(Brown *et al.* 2002a)
18m	0.31 ± 0.03	0.08 ± 0.02	-	-	10,747	-	-	-	4.72	13	Merino	(Brown *et al.* 2002a)
16m	0.44 ± 0.02	-	-	-	9,435	442	4,577	12	4.7	13	Merino	(Cloete *et al.* 2002a)
12m, adult	0.22 ± 0.02	-	0.20 ± 0.01	-	29,013	159	-	15	2.6	16	Ultrafine Merino	(Sherlock *et al.* 2003)
Adult	0.53 ± 0.06	-	0.16 ± 0.05	-	2,872	216	1,107	15	5.32	17	Merino	(Cloete *et al.* 2004)

Table 1. Estimates of heritability for wool traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yr	Mean	CV	Breed	Reference
Dual purpose												
14m	0.17 ± 0.05	-	-	-	1,294	75	-	5	3.43	14	Border Leicester	(Brash *et al.* 1994a)
12m	0.32 ± 0.07	-	-	-	2,909	64	-	7	3.42	25	Corriedale	(Brash *et al.* 1994b)
12m	0.28 ± 0.05	-	-	-	4,044	84	-	20	3.03	16	Coopworth	(Brash *et al.* 1994c)
15m	0.38 ± 0.08	-	-	-	1,581	130	-	8	3.22	14	Hyfer	(Fogarty *et al.* 1994)
12m	0.41*	-	-	-	3,578	212	1,741	10	3.80	15	Targhee	(Notter and Hough 1997)
14m	0.55 ± 0.07	-	-	-	1,492	53	-	4	-	-	Corriedale	(Benavides *et al.* 1998)
12m	0.33 ± 0.04	-	-	-	2,987	114	-	9	2.40	-	Romney	(Wuliji *et al.* 1998)
12m	0.33 ± 0.03	0.02 ± 0.01	-	-	8,317	109	2,172	16	2.94	16	Coopworth	(Lewis and Beatson 1999)
12m	0.15 ± 0.02	0.07 ± 0.01	-	-	9,842	176	3,260	16	3.39	13	Coopworth	(Lewis and Beatson 1999)
12m	0.30 ± 0.04	0.00 ± 0.01	-	-	5,933	108	1,738	16	2.91	15	Coopworth	(Lewis and Beatson 1999)
12m	0.30 ± 0.04	0.02 ± 0.01	-	-	4,594	86	1,119	16	3.21	14	Coopworth	(Lewis and Beatson 1999)
12m	0.21 ± 0.02	0.03 ± 0.01	-	-	8,763	199	3,092	16	2.66	16	Coopworth	(Lewis and Beatson 1999)
12m	0.28 ± 0.02	0.01 ± 0.01	-	-	12,284	287	3,311	16	2.86	14	Coopworth	(Lewis and Beatson 1999)
12m	0.38 ± 0.04	0.00 ± 0.01	-	-	3,812	71	1,063	16	3.32	13	Coopworth	(Lewis and Beatson 1999)
Pooled	0.26 ± 0.03	0.02 ± 0.01	-	-	53,545	1,036	15755	16	3.04	14	Coopworth	(Lewis and Beatson 1999)
Adult	0.52	-	0.17	-	11,673	286	1,709	23	5.10	16	Columbia	(Bromley *et al.* 2000)
Adult	0.55	-	0.08	-	34,746	869	5,462	23	3.80	22	Polypay	(Bromley *et al.* 2000)
Adult	0.52	-	0.11	-	18,443	559	2,390	23	4.60	17	Rambouillet	(Bromley *et al.* 2000)
Adult	0.52	-	0.15	-	15,014	536	2,203	23	4.80	16	Targhee	(Bromley *et al.* 2000)
12m	0.41	-	-	-	5,471	311	2,841	13	3.80	15	Targhee	(Rao and Notter 2000)
12m	0.44	-	-	-	1,099	128	713	13	4.20	17	Polypay	(Rao and Notter 2000)
Adult	0.53 ± 0.02	-	0.14 ± 0.01	-	29,572	911	4,106	48	5.31	17	Columbia	(Hanford *et al.* 2002)
Adult	0.57 ± 0.02	0.02 ± 0.01	0.02 ± 0.02	-	36,195	1,368	5,256	49	4.93	17	Targhee	(van Vleck *et al.* 2003)
Clean fleece weight [CFW] (kg)												
Wool breeds												
15m male	0.44 ± 0.11	-	-	-	1,527	180	-	6	-	-	Merino	(Lewer *et al.* 1994)
15m female	0.27 ± 0.07	-	-	-	2,084	177	-	6	-	-	Merino	(Lewer *et al.* 1994)
15m	0.35 ± 0.05	0.09 ± 0.03	-	-0.31	3,830	-	-	7	-	-	Merino	(Mortimer and Atkins 1994)
17m	0.29 ± 0.00	0.03 ± 0.00	-	-0.35	7,151	211	2,455	26	5.41	15	Merino	(van Wyk *et al.* 1994)
11m	0.34 ± 0.04	0.13 ± 0.02	0.00 ± 0.00	-0.48	2,821	-	-	20	-	-	Merino	(Hickson *et al.* 1995)
17m	0.55 ± 0.02	0.07 ± 0.01	0.00 ± 0.00	-0.51	6,373	-	-	20	-	-	Merino	(Hickson *et al.* 1995)
10m	0.59	-	-	-	2,200	162	-	4	2.27	18	Merino	(Ponzoni *et al.* 1995)
16m	0.51	-	-	-	2,200	162	-	4	2.93	15	Merino	(Ponzoni *et al.* 1995)

Table 1. Estimates of heritability for wool traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yr	Mean	CV	Breed	Reference
10m	0.31	-	-	-	2,535	141	-	3	-	-	Merino	(Swan *et al.* 1995)
Adult	0.53 ± 0.10	-	0.08 ± 0.09	-	981	-	-	-	2.45	-	Merino	(Woolaston *et al.* 1995)
18m	0.26 ± 0.04	0.04 ± 0.04	-	-	7,371	685	2,554	22	2.67	15	Merino	(Snyman *et al.* 1996)
10m	0.39 ± 0.09	-	-	-	1,284	68	969	2	2.19	27	Merino	(Brash *et al.* 1997)
16m	0.34 ± 0.08	-	-	-	1,209	68	969	2	3.35	19	Merino	(Brash *et al.* 1997)
9m	0.29	-	-	-	5,100	196	-	5	1.63	15	Merino	(Purvis and Swan 1997)
17m	0.29 ± 0.02	0.04 ± 0.01	-	-	7,383	674	2,387	28	4.00	15	Merino	(Cloete *et al.* 1998)
11m	0.35 ± 0.06	-	-	-	1,902	69	590	15	1.95	20	Dohne Merino	(Cloete *et al.* 1998)
15m	0.37 ± 0.03	-	-	-	3,829	-	-	7	-	-	Merino	(Coelli *et al.* 1998)
2y	0.40 ± 0.03	-	-	-	3,232	-	-	9	-	-	Merino	(Coelli *et al.* 1998)
3y	0.49 ± 0.04	-	-	-	3,232	-	-	9	-	-	Merino	(Coelli *et al.* 1998)
4y	0.48 ± 0.04	-	-	-	3,232	-	-	9	-	-	Merino	(Coelli *et al.* 1998)
5y	0.48 ± 0.04	-	-	-	3,232	-	-	9	-	-	Merino	(Coelli *et al.* 1998)
6y	0.41 ± 0.05	-	-	-	3,232	-	-	9	-	-	Merino	(Coelli *et al.* 1998)
16m	0.38	-	-	-	3,658	89	1,683	9	1.82	19	Merino	(Greeff and Karlsson 1998)
14m	0.35 ± 0.05	-	-	-	3,665	165	-	4	-	-	Merino	(Greeff and Karlsson 1999)
10m	0.41 ± 0.02	-	-	-	6,213	300	-	6	-	-	Merino	(Li *et al.* 1999)
15m	0.34 ± 0.09	-	-	-	900	54	-	-	2.25	-	Merino	(Rose and Pepper 1999)
15m	0.20 ± 0.11	-	-	-	900	54	-	-	1.79	-	Merino	(Rose and Pepper 1999)
16m	0.41 ± 0.03	-	-	-	1,508	120	1,135	2	4.60	14	Merino	(Taylor *et al.* 1999)
12m	0.28 ± 0.10	0.12 ± 0.05	-	-	880	37	330	15	3.20	14	Merino	(Cloete *et al.* 2001)
12m	0.28 ± 0.06	0.12 ± 0.03	-	-	1,608	49	511	15	2.10	16	Dohne Merino	(Cloete *et al.* 2001)
10m rams	0.48 ± 0.08	-	-	-	2,286	158	-	4	2.37	22	Merino	(Hill 2001)
16m rams	0.57 ± 0.08	-	-	-	2,239	158	-	4	3.04	18	Merino	(Hill 2001)
16m ewes	0.42 ± 0.06	-	-	-	2,134	155	-	4	4.36	17	Merino	(Hill 2001)
28m ewes	0.39 ± 0.06	-	-	-	2,087	155	-	4	4.85	17	Merino	(Hill 2001)
40m ewes	0.51 ± 0.06	-	-	-	2,000	155	-	4	5.07	17	Merino	(Hill 2001)
10m	0.28 ± 0.07	0.07 ± 0.03	-	-	1,785	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
16m	0.42 ± 0.02	-	-	-	9,389	442	4,577	12	3.30	14	Merino	(Cloete *et al.* 2002a)
12m	0.38 ± 0.08	-	-	-	1,729	100	-	2	1.86	14	Merino	(Lee *et al.* 2002)
28m	0.52 ± 0.11	-	-	-	1,292	150	-	3	2.93	14	Merino	(Lee *et al.* 2002)
Adult	0.34 ± 0.08	-	0.31 ± 0.08	-	1,199	-	-	6	3.80	17	Merino	(Cloete *et al.* 2003)
16m rams	0.49 ± 0.06	-	-	-	2,203	98	-	2	2.27	24	Merino	(Ingham 2003)
12m, adult	0.25 ± 0.02	-	0.21 ± 0.01	-	27,445	159	-	15	1.70	17	Ultrafine Merino	(Sherlock *et al.* 2003)

Table 1. Estimates of heritability for wool traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yr	Mean	CV	Breed	Reference
Dual purpose												
12m	0.29 ± 0.07	-	-	-	2,798	63	-	7	2.56	26	Corriedale	(Brash *et al.* 1994b)
Adult	0.60 ± 0.09	-	0.06	-	3,857	-	-	10	3.02	-	White face	(Saboulard *et al.* 1995)
13m	0.62	-	-	-	3,748	145	928	18	2.01	19	Afrino	(Snyman *et al.* 1995)
14m	0.52 ± 0.07	-	-	-	1,492	53	-	4	-	-	Corriedale	(Benavides *et al.* 1998)
12m	0.34 ± 0.04	-	-	-	2,987	114	-	9	1.76	-	Romney	(Wuliji *et al.* 1998)
12m	0.68 ± 0.05	-	-	-	1,518	50	432	15	1.60	16	SA Meat Merino	(Cloete *et al.* 2001)
Yield [YLD] (%)												
Wool breeds												
15m-male	0.46 ± 0.11	-	-	-	1,527	180	-	6	-	-	Merino	(Lewer *et al.* 1994)
15m-female	0.47 ± 0.09	-	-	-	2,084	177	-	6	-	-	Merino	(Lewer *et al.* 1994)
10m	0.57	-	-	-	2,200	162	-	4	65.8	8	Merino	(Ponzoni *et al.* 1995)
16m	0.72	-	-	-	2,200	162	-	4	72.2	7	Merino	(Ponzoni *et al.* 1995)
10m	0.60	-	-	-	2,535	141	-	3	-	-	Merino	(Swan *et al.* 1995)
10m	0.41 ± 0.08	-	-	-	1,284	68	969	2	64.2	11	Merino	(Brash *et al.* 1997)
16m	0.34 ± 0.08	-	-	-	1,211	68	969	2	67.0	8	Merino	(Brash *et al.* 1997)
17m	0.68 ± 0.02	-	-	-	7,385	667	2,253	28	68.6	7	Merino	(Cloete *et al.* 1998)
11m	0.66 ± 0.05	-	-	-	1,902	69	590	15	66.6	9	Dohne Merino	(Cloete *et al.* 1998)
10m	0.48 ± 0.04	-	-	-	6,213	300	-	6	-	-	Merino	(Li *et al.* 1999)
15m	0.62 ± 0.13	-	-	-	900	54	-	-	62.6	-	Merino	(Rose and Pepper 1999)
15m	0.52 ± 0.17	-	-	-	900	54	-	-	65.6	-	Merino	(Rose and Pepper 1999)
10m rams	0.67 ± 0.08	-	-	-	2,286	158	-	4	67.6	8	Merino	(Hill 2001)
16m rams	0.67 ± 0.08	-	-	-	2,239	158	-	4	72.6	7	Merino	(Hill 2001)
16m ewes	0.66 ± 0.06	-	-	-	2,134	155	-	4	71.9	7	Merino	(Hill 2001)
28m ewes	0.52 ± 0.06	-	-	-	2,087	155	-	4	73.1	8	Merino	(Hill 2001)
40m ewes	0.61 ± 0.06	-	-	-	2,000	155	-	4	72.7	8	Merino	(Hill 2001)
10m	0.58 ± 0.06	-	-	-	1,790	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
16m	0.63 ± 0.02	-	-	-	9,409	442	4,577	12	70.5	6	Merino	(Cloete *et al.* 2002a)
12m, 17m, adult	0.34 ± 0.02	-	0.11 ± 0.01	-	85,813	159	-	15	66.9	7	Ultrafine Merino	(Sherlock *et al.* 2003)
Dual purpose												
12m	0.53 ± 0.10	-	-	-	2,799	63	-	7	73.9	6	Corriedale	(Brash *et al.* 1994b)
14m	0.51 ± 0.07	-	-	-	1,492	53	-	4	-	-	Corriedale	(Benavides *et al.* 1998)
12m	0.39 ± 0.04	-	-	-	2,987	114	-	9	73.1	-	Romney	(Wuliji *et al.* 1998)

Table 1. Estimates of heritability for wool traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yr	Mean	CV	Breed	Reference
Fibre diameter [FD] (μm)												
Wool breeds												
15m-male	0.58 ± 0.12	-	-	-	1,527	180	-	6	-	-	Merino	(Lewer *et al.* 1994)
15m-female	0.59 ± 0.09	-	-	-	2,084	177	-	6	-	-	Merino	(Lewer *et al.* 1994)
15m	0.62 ± 0.07	0.01 ± 0.03	-	-0.04	3,830	-	-	7	-	-	Merino	(Mortimer and Atkins 1994)
12m	0.44 ± 0.05	0.01 ± 0.03	-	-	2,862	202	828	18	-	-	Merino	(Swan and Hickson 1994)
17m	0.63 ± 0.02	0.01 ± 0.02	-	-0.27	7,151	211	2,455	26	23.2	7	Merino	(van Wyk *et al.* 1994)
10m	0.45	-	-	-	2,200	162	-	4	21.3	7	Merino	(Ponzoni *et al.* 1995)
16m	0.59	-	-	-	2,200	162	-	4	22.6	8	Merino	(Ponzoni *et al.* 1995)
10m	0.58	-	-	-	2,535	141	-	3	-	-	Merino	(Swan *et al.* 1995)
Adult	0.59 ± 0.09	-	0.06 ± 0.08	-	1,262	-	-	-	19.9	-	Merino	(Woolaston *et al.* 1995)
18m	0.60 ± 0.04	-	-	-	7,396	685	2,557	22	19.5	7	Merino	(Snyman *et al.* 1996)
10m	0.58 ± 0.10	-	-	-	1,284	68	969	2	20.1	8	Merino	(Brash *et al.* 1997)
16m	0.55 ± 0.10	-	-	-	1,211	68	969	2	22.7	10	Merino	(Brash *et al.* 1997)
9m	0.68	-	-	-	5,100	196	-	5	16.9	6	Merino	(Purvis and Swan 1997)
17m	0.63 ± 0.02	-	-	-	7,385	667	2,253	28	20.2	7	Merino	(Cloete *et al.* 1998)
11m	0.43 ± 0.07	-	-	-	1,902	69	590	15	21.8	6	Dohne Merino	(Cloete *et al.* 1998)
15m	0.62 ± 0.03	-	-	-	3,829	-	-	7	-	-	Merino	(Coelli *et al.* 1998)
2y	0.63 ± 0.04	-	-	-	3,232	-	-	9	-	-	Merino	(Coelli *et al.* 1998)
3y	0.64 ± 0.04	-	-	-	3,232	-	-	9	-	-	Merino	(Coelli *et al.* 1998)
4y	0.64 ± 0.04	-	-	-	3,232	-	-	9	-	-	Merino	(Coelli *et al.* 1998)
5y	0.62 ± 0.04	-	-	-	3,232	-	-	9	-	-	Merino	(Coelli *et al.* 1998)
6y	0.62 ± 0.05	-	-	-	3,232	-	-	9	-	-	Merino	(Coelli *et al.* 1998)
16m	0.43	-	-	-	3,696	89	1,683	9	18.2	7	Merino	(Greeff and Karlsson 1998)
12m	0.57 ± 0.05	-	-	-	3,665	156	-	4	-	-	Merino	(Greeff and Karlsson 1999)
10m	0.65 ± 0.02	-	-	-	6,213	300	-	6	-	-	Merino	(Li *et al.* 1999)
1yr	0.19 ± 0.01	-	-	-	25,990	1,096	20,406	18	23.3	9	Merino	(Nagy *et al.* 1999)
15m	0.74 ± 0.15	-	-	-	900	54	-	-	21.0	-	Merino	(Rose and Pepper 1999)
15m	0.67 ± 0.19	-	-	-	900	54	-	-	20.1	-	Merino	(Rose and Pepper 1999)
16m	0.69 ± 0.03	-	-	-	1,508	120	1,135	2	21.3	7	Merino	(Taylor *et al.* 1999)
12m	0.59 ± 0.08	-	-	-	880	37	330	15	21.9	6	Merino	(Cloete *et al.* 2001)
12m	0.61 ± 0.06	-	-	-	1,607	49	511	15	21.8	6	Dohne Merino	(Cloete *et al.* 2001)
10m rams	0.52 ± 0.08	-	-	-	2,286	158	-	4	21.5	8	Merino	(Hill 2001)
16m rams	0.62 ± 0.08	-	-	-	2,239	158	-	4	22.8	10	Merino	(Hill 2001)

Table 1. Estimates of heritability for wool traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yr	Mean	CV	Breed	Reference
16m ewes	0.72 ± 0.06	-	-	-	2,134	155	-	4	22.2	9	Merino	(Hill 2001)
28m ewes	0.73 ± 0.06	-	-	-	2,087	155	-	4	24.0	9	Merino	(Hill 2001)
40m ewes	0.68 ± 0.06	-	-	-	2,000	155	-	4	24.8	9	Merino	(Hill 2001)
10m	0.59 ± 0.06	-	-	-	1,790	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
12m	0.67 ± 0.23	-	-	-	758	-	-	-	17.2	-	Merino	(Brown *et al.* 2002a)
18m	0.66 ± 0.03	0.00 ± 0.01	-	-	10,731	-	-	-	19.2	-	Merino	(Brown *et al.* 2002a)
12m	0.62 ± 0.10	-	-	-	1,729	100	-	2	18.2	6	Merino	(Lee *et al.* 2002)
28m	0.72 ± 0.12	-	-	-	1,292	150	-	3	19.8	6	Merino	(Lee *et al.* 2002)
16m	0.71 ± 0.02	0.02 ± 0.01	-	-	9,458	442	4,577	12	21.1	7	Merino	(Cloete *et al.* 2002a)
Adult	0.76 ± 0.02	-	-	-	1,199	-	-	6	22.5	8	Merino	(Cloete *et al.* 2003)
16m rams	0.57 ± 0.06	-	-	-	2,182	98	-	4	22.6	10	Merino	(Ingham 2003)
12m, 17m, adult	0.42 ± 0.03	-	0.26 ± 0.01	-	85,782	159	-	15	14.2	6	Ultrafine Merino	(Sherlock *et al.* 2003)
Dual purpose												
12m	0.56 ± 0.10	-	-	-	2,808	63	-	7	25.0	9	Corriedale	(Brash *et al.* 1994b)
16m	0.62 ± 0.14	-	-	-	1,009	54	-	7	29.2	8	Corriedale	(Brash *et al.* 1994b)
12m	0.18 ± 0.08	-	-	-	966	28	-	11	31.7	7	Coopworth	(Brash *et al.* 1994c)
13m	0.73	-	-	-	3,748	145	928	18	21.4	7	Afrino	(Snyman *et al.* 1995)
12m	0.58*	-	-	-	2,288	149	1,233	10	22.4	7	Targhee	(Notter and Hough 1997)
14m	0.52 ± 0.07	-	-	-	1,492	53	-	4	-	-	Corriedale	(Benavides *et al.* 1998)
12m	0.55 ± 0.05	-	-	-	2,987	114	-	9	34.7	-	Romney	(Wuliji *et al.* 1998)
12m	0.50	-	-	-	3,908	225	2,136	13	22.2	-	Targhee	(Rao and Notter 2000)
12m	0.75 ± 0.05	-	-	-	1,518	50	432	15	23.7	6	SA Meat Merino	(Cloete *et al.* 2001)
Coefficient of variation of fibre diameter [CVFD] (%)												
10m	0.59	-	-	-	2,200	162	-	4	23.6	11	Merino	(Ponzoni *et al.* 1995)
16m	0.61	-	-	-	2,200	162	-	4	23.6	11	Merino	(Ponzoni *et al.* 1995)
10m	0.33	-	-	-	2,535	141	-	3	-	-	Merino	(Swan *et al.* 1995)
10m	0.54 ± 0.10	-	-	-	1,284	68	969	2	19.8	12	Merino	(Brash *et al.* 1997)
16m	0.41 ± 0.09	-	-	-	1,211	68	969	2	19.5	12	Merino	(Brash *et al.* 1997)
9m	0.55	-	-	-	5,100	196	-	5	17.6	13	Merino	(Purvis and Swan 1997)
16m	0.50	-	-	-	1,142	36	744	9	25.1	10	Merino	(Greeff and Karlsson 1998)
16m	0.54 ± 0.05	-	-	-	3,665	165	-	4	-	-	Merino	(Greeff and Karlsson 1999)
10m rams	0.59 ± 0.08	-	-	-	2,286	158	-	4	23.3	12	Merino	(Hill 2001)
16m rams	0.60 ± 0.08	-	-	-	2,239	158	-	4	23.3	13	Merino	(Hill 2001)

Table 1. Estimates of heritability for wool traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yr	Mean	CV	Breed	Reference
16m ewes	0.71 ± 0.06	-	-	-	2,134	155	-	4	24.1	12	Merino	(Hill 2001)
28m ewes	0.63 ± 0.06	-	-	-	2,087	155	-	4	22.8	12	Merino	(Hill 2001)
40m ewes	0.69 ± 0.06	-	-	-	2,000	155	-	4	22.3	11	Merino	(Hill 2001)
10m	0.60 ± 0.06	-	-	-	1,789	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
12m	0.33 ± 0.16	-	-	-	472	-	-	-	16.4	-	Merino	(Brown *et al.* 2002a)
18m	0.37 ± 0.03	0.00 ± 0.00	-	-	9,874	-	-	-	20.0	-	Merino	(Brown *et al.* 2002a)
16m	0.62 ± 0.03	-	-	-	5,642	422	4,577	12	23.5	12	Merino	(Cloete *et al.* 2002a)
12m	0.25 ± 0.07	-	-	-	1,729	100	-	2	14.6	12	Merino	(Lee *et al.* 2002)
28m	0.23 ± 0.09	-	-	-	1,292	150	-	3	17.9	10	Merino	(Lee *et al.* 2002)
Adult	0.74 ± 0.28	-	-	-	1,199	-	-	6	19.4	12	Merino	(Cloete *et al.* 2003)
Standard deviation of fibre diameter [SDFD] (μm)												
10m	0.44	-	-	-	2,200	162	-	4	5.03	14	Merino	(Ponzoni *et al.* 1995)
16m	0.58	-	-	-	2,200	162	-	4	5.34	13	Merino	(Ponzoni *et al.* 1995)
10m	0.35	-	-	-	2,535	141	-	3	-	-	Merino	(Swan *et al.* 1995)
10m	0.50 ± 0.03	-	-	-	6,213	300	-	6	-	-	Merino	(Li *et al.* 1999)
10m rams	0.58 ± 0.08	-	-	-	2,286	158	-	4	5.01	14	Merino	(Hill 2001)
16m rams	0.57 ± 0.08	-	-	-	2,239	158	-	4	5.31	17	Merino	(Hill 2001)
16m ewes	0.68 ± 0.06	-	-	-	2,134	155	-	4	5.36	14	Merino	(Hill 2001)
28m ewes	0.73 ± 0.06	-	-	-	2,087	155	-	4	5.45	14	Merino	(Hill 2001)
40m ewes	0.73 ± 0.06	-	-	-	2,000	155	-	4	5.50	12	Merino	(Hill 2001)
Staple length [SL] (mm)												
Wool breeds												
15m	0.51 ± 0.06	0.00 ± 0.03	-	-1.0	3,830	-	-	7	-	-	Merino	(Mortimer and Atkins 1994)
10m	0.32	-	-	-	2,200	162	-	4	57.6	9	Merino	(Ponzoni *et al.* 1995)
16m	0.48	-	-	-	2,200	162	-	4	65.2	10	Merino	(Ponzoni *et al.* 1995)
10m	0.49	-	-	-	2,535	141	-	3	-	-	Merino	(Swan *et al.* 1995)
9m	0.44	-	-	-	5,100	196	-	5	66.5	13	Merino	(Purvis and Swan 1997)
17m	0.35 ± 0.02	-	-	-	7,385	667	2,253	28	87.0	11	Merino	(Cloete *et al.* 1998)
11m	0.35 ± 0.06	-	-	-	1,678	68	566	15	111.0	12	Dohne Merino	(Cloete *et al.* 1998)
16m	0.40	-	-	-	1,981	52	1,329	9	93.0	11	Merino	(Greeff and Karlsson 1998)
10m	0.50 ± 0.03	-	-	-	6,213	300	-	6	-	-	Merino	(Li *et al.* 1999)

Table 1. Estimates of heritability for wool traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yr	Mean	CV	Breed	Reference
1yr	0.17 ± 0.01	-	-	-	25,990	1,096	20,406	18	95.7	16	Merino	(Nagy *et al.* 1999)
10m rams	0.38 ± 0.07	-	-	-	2,286	158	-	4	58.3	10	Merino	(Hill 2001)
16m rams	0.50 ± 0.08	-	-	-	2,239	158	-	4	67.6	12	Merino	(Hill 2001)
16m ewes	0.63 ± 0.06	-	-	-	2,134	155	-	4	115.4	10	Merino	(Hill 2001)
28m ewes	0.62 ± 0.06	-	-	-	2,087	155	-	4	110.3	9	Merino	(Hill 2001)
40m ewes	0.63 ± 0.06	-	-	-	2,000	155	-	4	108.5	10	Merino	(Hill 2001)
10m	0.71 ± 0.11	-	-	-	579	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
12m	0.75 ± 0.26	-	-	-	371	-	-	-	77.2	-	Merino	(Brown *et al.* 2002a)
18m	0.57 ± 0.08	0.00 ± 0.00	-	-	2,179	-	-	-	99.3	-	Merino	(Brown *et al.* 2002a)
16m rams	0.46 ± 0.06	-	-	-	2,182	98	-	4	-	-	Merino	(Ingham 2003)
Dual purpose breeds												
12m	0.40 ± 0.06	-	-	-	2,987	114	-	9	116	-	Romney	(Wuliji *et al.* 1998)
Adult	0.47	-	-	-	4,603	276	1,406	23	83	13	Columbia	(Bromley *et al.* 2000)
Adult	0.54	-	-	-	13,049	784	4,648	23	78	18	Polypay	(Bromley *et al.* 2000)
Adult	0.36	-	-	-	7,080	531	2,110	23	72	13	Rambouillet	(Bromley *et al.* 2000)
Adult	0.53	-	-	-	5,534	511	1,855	23	79	13	Targhee	(Bromley *et al.* 2000)
12m	0.55 ± 0.04	-	-	-	2,449	226	1,340	14	92	13	Columbia	(Hanford *et al.* 2002)
Staple strength [SS] (N/ktex)												
Wool breeds												
10m	0.25	-	-	-	2,200	162	-	4	42.3	24	Merino	(Ponzoni *et al.* 1995)
16m	0.47	-	-	-	2,200	162	-	4	45.5	23	Merino	(Ponzoni *et al.* 1995)
10m	0.23	-	-	-	2,535	141	-	3	-	-	Merino	(Swan *et al.* 1995)
16m	0.26	-	-	-	1,989	52	1,332	9	18.1	31	Merino	(Greeff and Karlsson 1998)
16m	0.36 ± 0.05	-	-	-	3,665	165	-	4	-	-	Merino	(Greeff and Karlsson 1999)
10m	0.34 ± 0.03	-	-	-	6,213	300	-	6	-	-	Merino	(Li *et al.* 1999)
10m rams	0.24 ± 0.06	-	-	-	2,286	158	-	4	43.4	27	Merino	(Hill 2001)
16m rams	0.46 ± 0.07	-	-	-	2,239	158	-	4	46.5	25	Merino	(Hill 2001)
16m ewes	0.42 ± 0.06	-	-	-	2,134	155	-	4	24.6	37	Merino	(Hill 2001)
28m ewes	0.38 ± 0.06	-	-	-	2,087	155	-	4	28.0	36	Merino	(Hill 2001)
40m ewes	0.33 ± 0.06	-	-	-	2,000	155	-	4	30.1	39	Merino	(Hill 2001)
10m	0.13 ± 0.09	-	-	-	579	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
adult	0.05 ± 0.05	-	0.12 ± 0.05	-	991	-	-	6	43.6	30	Merino	(Cloete *et al.* 2003)
16m rams	0.45 ± 0.06	-	-	-	2,182	98	-	4	-	-	Merino	(Ingham 2003)

Table 1. Estimates of heritability for wool traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yr	Mean	CV	Breed	Reference
Dual purpose breeds												
12m	0.30 ± 0.05	-	-	-	2,987	114	-	9	33.2	-	Romney	(Wuliji *et al.* 1998)
Crimp frequency (crimps/25mm)												
10m	0.40	-	-	-	2,200	162	-	4	8.8	14	Merino	(Ponzoni *et al.* 1995)
16m	0.29	-	-	-	2,200	162	-	4	8.1	16	Merino	(Ponzoni *et al.* 1995)
16m	0.37 ± 0.10	-	-	-	1,312	69	971	-	9.6	14	Merino	(Taylor *et al.* 1997)
16m	0.54 ± 0.07	-	-	-	1,508	120	1,135	2	9.8	11	Merino	(Taylor *et al.* 1999)
10m rams	0.42 ± 0.07	-	-	-	2,286	158	-	4	8.8	14	Merino	(Hill 2001)
16m rams	0.38 ± 0.07	-	-	-	2,239	158	-	4	8.2	19	Merino	(Hill 2001)
16m ewes	0.43 ± 0.05	-	-	-	2,134	155	-	4	7.9	18	Merino	(Hill 2001)
28m ewes	0.46 ± 0.06	-	-	-	2,087	155	-	4	8.2	18	Merino	(Hill 2001)
40m ewes	0.47 ± 0.06	-	-	-	2,000	155	-	4	8.2	18	Merino	(Hill 2001)
10m	0.45 ± 0.11	-	-	-	649	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
Other wool traits												
S/P ratio 9m	0.52	-	-	-	2,416	196	-	5	22.2	23	Merino	(Purvis and Swan 1997)
FDP/FDS ratio 9m	0.67	-	-	-	2,416	196	-	5	1.09	13	Merino	(Purvis and Swan 1997)
FD stability	0.19	-	-	-	2,200	162	-	4	1.31	10	Merino	(Ponzoni *et al.* 1995)
SD crimp freq.	0.09 ± 0.05	-	-	-	1,312	69	971	2	0.45	42	Merino	(Taylor *et al.* 1997)
Crimp defn. 16m	0.24 ± 0.06	-	-	-	1,508	120	1,135	2	2.9	28	Merino	(Taylor *et al.* 1999)
Fibre curv. 16m	0.39 ± 0.07	-	-	-	1,508	120	1,135	2	101	10	Merino	(Taylor *et al.* 1999)
SD curv. 16m	0.52 ± 0.07	-	-	-	1,508	120	1,135	2	93	5	Merino	(Taylor *et al.* 1999)
Fibre curv. 12m	0.47 ± 0.15	-	-	-	788	-	-	-	101	9	Merino	(Brown *et al.* 2002a)
Fibre curv. 18m	0.40 ± 0.11	0.07 ± 0.06	-	-	2,179	-	-	-	94	9	Merino	(Brown *et al.* 2002a)
Density 15m	0.26 ± 0.06	0.02 ± 0.06	-	-0.25	3,830	-	-	7	-	-	Merino	(Mortimer and Atkins 1994)
Density 10m	0.46 ± 0.04	0.09 ± 0.14	-	-0.40	2,860	-	-	20	-	-	Merino	(Hickson *et al.* 1995)
Density 9m	0.46	-	-	-	2,416	196	-	5	83.9	19	Merino	(Purvis and Swan 1997)
RTC 10m	0.44	-	-	-	2,535	141	-	3	-	-	Merino	(Swan *et al.* 1995)
RTC 10m	0.46 ± 0.07	-	-	-	1,313	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
Bulk 12m	0.44 ± 0.05	-	-	-	2,987	114	-	9	23.6	-	Romney	(Wuliji *et al.* 1998)
Bulk 10m	0.38 ± 0.07	-	-	-	1,313	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
Bright 12m	0.14 ± 0.04	-	-	-	2,987	114	-	9	60	-	Romney	(Wuliji *et al.* 1998)
Bright 10m	0.38 ± 0.06	-	-	-	1,359	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)

Table 1. Estimates of heritability for wool traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yr	Mean	CV	Breed	Reference
Yellow 16m	0.05 ± 0.05	-	-	-	1,312	69	971	2	5.72	33	Merino	(Taylor *et al.* 1997)
Yellow susc. 14m	0.27 ± 0.06	-	-	-	1,492	53	-	4	6.52	18	Corriedale	(Benavides *et al.* 1998)
Yellow score 14m	0.30 ± 0.06	-	-	-	1,492	53	-	4	6.01	22	Corriedale	(Benavides *et al.* 1998)
Yellow 12m	0.14 ± 0.04	-	-	-	2,987	114	-	9	2.1	-	Romney	(Wuliji *et al.* 1998)
Yellow 10m	0.42 ± 0.07	-	-	-	1,359	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
Dust back 10m	0.14	-	-	-	2,200	162	-	4	2.67	30	Merino	(Ponzoni *et al.* 1995)
Dust back 16m	0.18	-	-	-	2,200	162	-	4	1.81	29	Merino	(Ponzoni *et al.* 1995)
Dust mid 10m	0.32	-	-	-	2,200	162	-	4	2.28	24	Merino	(Ponzoni *et al.* 1995)
Dust mid 16m	0.21	-	-	-	2,200	162	-	4	1.97	30	Merino	(Ponzoni *et al.* 1995)
Dust 16m	0.42 ± 0.11	-	-	-	1,312	69	971	2	45.1	14	Merino	(Taylor *et al.* 1997)
Tip length 16m	0.20 ± 0.08	-	-	-	1,312	69	971	2	4.89	24	Merino	(Taylor *et al.* 1997)
Tip weather 16m	0.31 ± 0.09	-	-	-	1,312	69	971	2	10.8	37	Merino	(Taylor *et al.* 1997)
Pt of break 10m	0.18 ± 0.09	-	-	-	579	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
Wool growth 12m	0.38 ± 0.08	-	-	-	1,729	100	-	2	11.4	24	Merino	(Lee *et al.* 2002)
Wool growth 28m	0.33 ± 0.10	-	-	-	1,292	150	-	3	9.4	22	Merino	(Lee *et al.* 2002)
Wool gr effic 12m	0.24 ± 0.07	-	-	-	1,729	100	-	2	12.7	32	Merino	(Lee *et al.* 2002)
Wool gr effic 28m	0.32 ± 0.10	-	-	-	1,292	150	-	3	9.6	28	Merino	(Lee *et al.* 2002)

* $P<0.05$

S/P ratio = ratio of secondary to primary fibres

FDP/FDS ratio = ratio of fibre diameters of primary and secondary fibres

RTC = resistance to compression

Table 2. Estimates of heritability for growth traits

Estimates of heritability ($h^2 \pm$ s.e.), maternal heritability ($m^2 \pm$s.e.), permanent environmental effect ($c^2 \pm$ s.e.), genetic correlation between direct and maternal effects ($r_{am} \pm$ s.e.), numbers of records, sires, dams and years of records, mean, coefficient of variation (CV %), breed and reference

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Birth weight (kg)												
Wool breeds												
Male	0.16 ± 0.06	-	-	-	2,223	205	-	8	-	-	Merino	(Lewer *et al.* 1994)
Female	0.32 ± 0.08	-	-	-	2,238	204	-	8	-	-	Merino	(Lewer *et al.* 1994)
	0.23 ± 0.02	0.14 ± 0.02	0.12 ± 0.01	-0.40*	14,090	404	3,661	9	3.4	10	Merino	(Mortimer and Atkins 1995)
	0.29 ± 0.04	0.29 ± 0.09	0.00 ± 0.06	-0.42	4,292	157	1,414	-	3.8	17	Merino	(Vaez Torshizi *et al.* 1996)
	0.05 ± 0.02	0.29 ± 0.01	0.11 ± 0.03	-0.21	3,355	126	964	8	3.8	15	Merino	(Analla and Serradilla 1998)
	0.04 ± 0.03	0.10 ± 0.06	0.17 ± 0.05	-	1,902	76	828	15	4.7	15	Dohne Merino	(Cloete *et al.* 1998)
	0.35 ± 0.08	0.19 ± 0.04	-	-	1,899	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
	0.19	0.25	0.10	-0.22	8,310	681	2,538	19	-	-	Merino	(Duguma *et al.* 2002b)
Dual purpose breeds												
	0.04	0.22	0.10	-0.99	2,086	15	352	4	2.5	25	Romanov	(Maria *et al.* 1993)
	0.16 ± 0.03	0.43 ± 0.03	-	-0.35	8,909	215	-	48	-	-	Dormer	(van Wyk *et al.* 1993)
	0.07	0.13	0.32***	-0.13	2,436	-	-	9	2.8	19	Romanov	(Tosh and Kemp 1994)
	0.08	-	0.41	-	2,085	32	1,668	2	4.0	16	Scottish Blackface	(Conington *et al.* 1995)
	0.24 ± 0.10	0.08 ± 0.05	0.57 ± 0.08	-	1,175	41	451	3	4.1	17	Crossbreed	(Hall *et al.* 1995)
	0.03 ± 0.02	0.13 ± 0.05	0.22 ± 0.04	0.37	-	-	-	9	2.0	23	Tropical breed	(Pitono and James 1995)
	0.22	0.09	0.12	-	4,325	146	946	18	4.7	14	Afrino	(Snyman *et al.* 1995)
	0.07	0.30	-	0.11	5,320	131	748	13	3.3	21	Swedish finewool	(Nasholm and Danell 1996)
	0.41 ± 0.03	-	-	-	7,294	-	1,279	11	3.6	12	Segurena	(Analla *et al.* 1997)
	0.14 ± 0.02	0.12 ± 0.02	0.04 ± 0.01	0.18 ± 0.11	10,208	-	-	24	4.4	14	Baluchi	(Yazdi *et al.* 1997)
	0.20 ± 0.02	0.07 ± 0.01	0.12 ± 0.01	0.15 ± 0.10	10,326	-	-	24	4.3	13	Baluchi	(Yazdi *et al.* 1997)
Spring	0.26	0.07	0.12	-	1,435	77	561	-	4.4	17	Composite	(Al-Shorepy and Notter 1998)
Fall	0.12	0.07	0.31	-	664	45	214	-	3.6	24	Composite	(Al-Shorepy and Notter 1998)
Combined	0.23	0.07	0.25	-	2,099	122	775	-	4.0	21	Composite	(Al-Shorepy and Notter 1998)
	0.32 (0.07) [1]	0.24 (0.06)	-	-0.10 (0.21)	1,880	50	-	5	5.0	14	Corriedale	(Jara *et al.* 1998)
	0.22 ± 0.06	0.42 ± 0.16	0.04 ± 0.05	-0.10 ±0.13	963	59	292	5	4.7	16	Dala	(Larsgard and Olesen 1998)
	0.15 (0.04) [1]	0.14 (0.04)	-	0.10 (0.20)	10,406	193	-	23	4.2	16	Baluchi	(Yazdi *et al.* 1999)
	0.18	0.24	0.09	-0.20	7,750	263	2,095	23	5.0	18	Columbia	(Bromley *et al.* 2000)
	0.16	0.21	0.10	0.12	9,524	246	2,285	23	4.0	19	Polypay	(Bromley *et al.* 2000)
	0.19	0.18	0.11	-0.09	9,530	451	2,435	23	4.7	16	Rambouillet	(Bromley *et al.* 2000)
	0.22	0.19	0.10	0.08	9,321	492	2,577	23	5.0	16	Targhee	(Bromley *et al.* 2000)

Table 2. Estimates of heritability for growth traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
	0.18 ± 0.03	0.19 ± 0.03	0.17 ± 0.03	-0.44	7,318	558	1,791	15	3.8	19	Chios	(Ligda *et al.* 2000b)
	0.11 ± 0.04	0.10 ± 0.04	0.12 ± 0.03	0.04	3,549	89	-	16	4.0	18	Dorper	(Neser *et al.* 2001)
	0.18	-	-	-	23,770	832	-	15	4.0	8	INRA-401	(Bibe *et al.* 2002)
	0.05	0.05	0.00	-0.55	10,370	3,341	63	11	3.6	14	Timahdite	(Boujenane and Kansari 2002)
	0.21 ± 0.07	0.16 ± 0.07	0.15 ± 0.06	-	1,036	-	-	10	3.8	17	Dormer	(Cloete *et al.* 2002)
	0.11 ± 0.06	-	0.18 ± 0.03	-	1,167	-	-	10	4.2	16	SA Mutton Merino	(Cloete *et al.* 2002)
	0.27 ± 0.02	0.25 ± 0.02	0.05 ± 0.01	-0.05 ± .05	24,741	1,020	6,385	48	4.9	18	Columbia	(Hanford *et al.* 2002)
	0.25 ± 0.04	0.12 ± 0.03	0.08 ± 0.03	-	4,123	130	1,131	10	2.8	16	Sabi	(Matika *et al.* 2003)
	0.23 ± 0.05	-	0.31 ± 0.03	-	1,465	60	263	7	4.1	13	Scott Blackface	(Roden *et al.* 2003)
	0.24 ± 0.01	0.19± 0.01	0.05 ± 0.01	0.11± 0.05	33,994	1,535	8,418	49	4.9	17	Targhee	(van Vleck *et al.* 2003)
Meat breeds												
	0.39*	0.22*	0.37***	-0.56**	2,659	-	-	14	4.5	17	Hampshire	(Tosh and Kemp 1994)
	0.12	0.31***	0.27***	-0.35	13,977	-	-	14	4.1	17	Polled Dorset	(Tosh and Kemp 1994)
	0.09	0.17	0.09	0.01	9,055	295	2,709	12	5.8	18	Composite	(Mousa *et al.* 1999)
	0.09	0.15	-	0.03 ± 0.24	2,250	-	-	6	3.8	23	Belgian Texel	(Janssens *et al.* 2000)
	0.17 ± 0.06	0.35 ± 0.06	0.13 ± 0.06	-0.64	892	106	236	8	4.4	19	Suffolk	(Maniatis and Pollott 2002a)
	0.05 ± 0.02	0.29 ± 0.03	0.11 ± 0.03	-	1,932	119	-	9	4.7	21	Suffolk	(Simm *et al.* 2002)
Weaning weight (including pre-weaning, kg)												
Wool breeds												
3m-male	0.39 ± 0.08	-	-	-	2,223	205	-	8	-	-	Merino	(Lewer *et al.* 1994)
3m-female	0.37 ± 0.08	-	-	-	2,238	204	-	8	-	-	Merino	(Lewer *et al.* 1994)
5m	0.19 ± 0.02	0.14 ± 0.02	0.02 ± 0.02	0.61	8,243	227	2,536	18	-	-	Merino	(Swan and Hickson 1994)
4-5m	0.27 ± 0.03	0.11 ± 0.01	0.07 ± 0.01	-0.20*	10,139	404	3,381	8	22.0	10	Merino	(Mortimer and Atkins 1995)
120d	0.14 ± 0.04	0.11 ± 0.04	0.05 ± 0.04	0.57 ± 0.30	8,480	707	2,710	22	20.8	15	Merino	(Snyman *et al.* 1996)
11w	0.27 ± 0.04	0.38 ± 0.07	0.03 ± 0.06	-0.60	3,701	157	1,365	-	16.5	18	Merino	(Vaez Torshizi *et al.* 1996)
30d	0.04 ± 0.01	0.22 ± 0.01	0.01 ± 0.02	-0.27	3,355	126	964	8	11.5	15	Merino	(Analla and Serradilla 1998)
60d	0.08 ± 0.04	0.16 ± 0.03	0.03 ± 0.02	-0.01	3,355	126	964	8	18.6	14	Merino	(Analla and Serradilla 1998)
90d	0.13 ± 0.05	0.04 ± 0.03	0.06 ± 0.02	0.07	3,355	126	964	8	27.7	13	Merino	(Analla and Serradilla 1998)
101d	0.06 ± 0.04	-	0.21 ± 0.04	-	1,390	62	485	15	28.1	12	Dohne Merino	(Cloete *et al.* 1998)
3m	0.34	-	-	-	3,983	89	1,729	9	20.1	17	Merino	(Greeff and Karlsson 1998)
60d	0.17± 0.01	-	-	-	20,505	1,260	16,338	18	16.3	26	Merino	(Nagy *et al.* 1999)
110d	0.18± 0.07	0.15± 0.04	-	-	1,473	37	330	15	26.0	16	Merino	(Cloete *et al.* 2001)
110d	0.21± 0.07	0.30± 0.05	-	-0.72± 0.11	2,329	49	511	15	30.1	15	Dohne Merino	(Cloete *et al.* 2001)

Table 2. Estimates of heritability for growth traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
	0.34 ± 0.08	0.16 ± 0.04	-	-	1,823	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
120d	0.26	0.05	0.06	0.05	8,310	681	2,538	19	-	-	Merino	(Duguma *et al.* 2002b)
Dual purpose breeds												
40d	0.34	0.25	0.00	-0.98	-	15	352	4	14.1	14	Romanov	(Maria *et al.* 1993)
4m	0.13 ± 0.03	0.20 ± 0.03	-	-0.16	7,740	215	-	48	-	-	Dormer	(van Wyk *et al.* 1993)
4m	0.34 ± 0.07	-	-	-	3,202	64	-	7	24.9	22	Corriedale	(Brash *et al.* 1994b)
3-4m	0.45 ± 0.07	-	-	-	7,030	92	-	20	28.1	15	Coopworth	(Brash *et al.* 1994c)
50d	0.05	0.06	0.21	-0.39	3,432	-	-	9	12.9	19	Romanov	(Tosh and Kemp 1994)
100d	0.14	0.02	0.12***	0.43	2,968	-	-	9	24.7	17	Romanov	(Tosh and Kemp 1994)
6-7w	0.02	-	0.23	-	2,067	32	1,668	2	13.8	14	Scottish Blackface	(Conington *et al.* 1995)
17w	0.12	-	0.18	-	1,922	32	1,668	2	28.5	12	Scottish Blackface	(Conington *et al.* 1995)
45d	0.24 ± 0.09	0.03 ± 0.05	0.13 ± 0.07	-	953	52	-	5	15.2	18	Composite	(Fossceco and Notter 1995)
60d	0.23 ± 0.10	0.00 ± 0.12	0.11 ± 0.17	-	947	55	-	5	20.3	17	Composite	(Fossceco and Notter 1995)
93d	0.19 ± 0.10	0.05 ± 0.05	0.15 ± 0.08	-	916	41	451	3	29.4	12	Crossbreed	(Hall *et al.* 1995)
	0.06 ± 0.03	0.09 ± 0.06	0.14 ± 0.03	0.21	-	-	-	9	9.5	25	Tropical breed	(Pitono and James 1995)
4m	0.33	0.17	-	-	4,325	146	946	18	27.7	13	Afrino	(Snyman *et al.* 1995)
60d	0.04	0.10	0.05	-	979	55	280	-	22.5	20	Composite	(Al-Shorepy and Notter 1996)
105d	0.12	0.13	-	0.47	4,852	131	773	13	26.1	21	Swedish finewool	(Nasholm and Danell 1996)
45d	0.34 ± 0.04	-	-	-	7,294	-	1,279	11	15.0	11	Segurena	(Analla *et al.* 1997)
77d	0.29 ± 0.04	0.22 ± 0.02	-	-0.12	10,234	287	3,058	-	19.9	15	Welsh Mountain	(Aslaminejad and Roden 1997)
77d	0.89 ± 0.21	0.44 ± 0.09	-	-0.77	1,939	37	757	-	18.2	19	Welsh Mountain	(Aslaminejad and Roden 1997)
77d	0.17 ± 0.04	0.09 ± 0.03	-	0.24	6,760	98	1,230	-	17.8	17	Welsh Mountain	(Aslaminejad and Roden 1997)
60d	0.01	0.10*	0.09*	-	3,516	64	1,321	10	24.7	16	Targhee	(Notter and Hough 1997)
120d	0.10*	0.05*	0.08*	-	6,047	107	2,120	10	36.3	16	Targhee	(Notter and Hough 1997)
100d	0.19 ± 0.02	0.03 ± 0.01	0.04 ± 0.01	0.51 ± 0.15	7,716	-	-	24	23.5	16	Baluchi	(Yazdi *et al.* 1997)
100d	0.13 ± 0.02	0.03 ± 0.01	0.07 ± 0.01	0.52 ± 0.20	8,446	-	-	24	22.8	16	Baluchi	(Yazdi *et al.* 1997)
92d	0.37 (0.10) [1]	0.38(0.08)	-	-0.57 (0.15)	1,880	50	-	5	25.3	13	Corriedale	(Jara *et al.* 1998)
6-7w	0.20 ± 0.10	0.14 ± 0.08	0.08 ± 0.05	0.04 ± 0.07	946	59	286	5	20.5	13	Dala	(Larsgard and Olesen 1998)
144d	0.12 ± 0.11	0.17 ± 0.08	0.10 ± 0.06	0.00 ± 0.07	952	58	288	5	42.6	12	Dala	(Larsgard and Olesen 1998)
	0.13 ± 0.06	0.09 ± 0.04	0.07 ± 0.02	-0.37	10,344	172	-	-	-	-	SA M Merino	(Neser *et al.* 1998)
80d	0.19 ± 0.05	-	-	-	2,987	114	-	9	21.2	-	Romney	(Wuliji *et al.* 1998)
11w pooled	0.14 ± 0.02	0.09 ± 0.01	0.05 ± 0.01	-0.44± 0.13	72,659	1,034	17,609	16	23.9	16	Coopworth	(Lewis and Beatson 1999)
11w	0.10 ± 0.02	0.08 ± 0.02	0.03 ± 0.01	-0.26 ±0.15	9,865	110	2,292	16	26.2	14	Coopworth	(Lewis and Beatson 1999)
11w	0.07 ± 0.02	0.07 ± 0.02	0.09 ± 0.01	-0.68 ±0.10	16,014	180	3,971	16	18.2	17	Coopworth	(Lewis and Beatson 1999)

Table 2. Estimates of heritability for growth traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
11w	0.03 ± 0.01	0.08 ± 0.03	0.00 ± 0.02	0.30 ± 0.36	7,000	108	1,808	16	28.2	15	Coopworth	(Lewis and Beatson 1999)
11w	0.07 ± 0.02	0.13 ± 0.03	0.01 ± 0.02	-0.26 ±0.22	5,485	86	1,192	16	25.0	15	Coopworth	(Lewis and Beatson 1999)
11w	0.37 ± 0.05	0.15 ± 0.03	0.04 ± 0.01	-0.78 ±0.05	11,945	192	3,485	16	22.3	17	Coopworth	(Lewis and Beatson 1999)
11w	0.15 ± 0.02	0.06 ± 0.01	0.06 ± 0.01	-0.54 ±0.10	16,317	286	3,576	16	22.7	16	Coopworth	(Lewis and Beatson 1999)
11w	0.04 ± 0.02	0.04 ± 0.02	0.03 ± 0.02	-0.13 ±0.38	6,033	72	1,345	16	24.7	16	Coopworth	(Lewis and Beatson 1999)
12w	0.20 ± 0.03	0.09 ± 0.02	0.18 ± 0.02	0.08 ± 0.12	8,880	160	2,861	17	20.4	20	Welsh Mountain	(Saatci *et al.* 1999)
42d	0.17 ± 0.01	0.07 ± 0.02	0.08 ± 0.01	-0.26	7,318	558	1,791	15	14.1	17	Chios	(Ligda *et al.* 2000b)
42d	0.37 ± 0.06	0.25 ± 0.07	0.16 ± 0.05	-0.90	6,117	292	2,857	26	17.5	18	SA Meat Merino	(Neser *et al.* 2000)
100d	0.18 ± 0.02	0.09 ± 0.01	0.10 ± 0.01	-0.55	63,662	1,608	25,053	20	30.6	16	SA Meat Merino	(Neser *et al.* 2000)
60d	0.11	0.11	0.15	-0.55	6,561	188	2,304	13	26.1	17	Polypay	(Rao and Notter 2000)
90d	0.10	0.02	0.22	-0.69	1,690	54	1,095	13	29.8	15	Polypay	(Rao and Notter 2000)
60d	0.14	0.22	0.10	-0.90	4,650	96	1,654	13	25.6	16	Targhee	(Rao and Notter 2000)
120d	0.16	0.06	0.08	-0.10	7,428	148	2,621	13	36.8	15	Targhee	(Rao and Notter 2000)
110d	0.32 ± 0.09	0.24 ± 0.06	-	-0.53 ±0.15	2,192	50	432	15	32.1	15	SA Meat Merino	(Cloete *et al.* 2001)
42d	0.28 ± 0.04	0.10 ± 0.03	0.11 ± 0.03	-0.11	2,889	89	-	16	11.9	18	Dorper	(Neser *et al.* 2001)
100d	0.20 ± 0.07	0.10 ± 0.07	0.08 ± 0.04	-0.08	2,836	89	-	16	25.6	18	Dorper	(Neser *et al.* 2001)
12w	0.16 ± 0.03	0.11 ± 0.02	0.04 ± 0.02	0.06 ± 0.13	11,201	181	-	-	20.6	21	Welsh Mountain	(Ap Dewi *et al.* 2002)
30d	0.02	0.07	0.00	-0.51	10,370	3,341	63	11	9.6	14	Timahdite	(Boujenane and Kansari 2002)
70d	0.07	0.08	0.00	-0.50	10,370	3,341	63	11	16.3	11	Timahdite	(Boujenane and Kansari 2002)
90d	0.06	0.01	0.03	-0.17	10,370	3,341	63	11	18.8	12	Timahdite	(Boujenane and Kansari 2002)
120d	0.16 ± 0.02	0.08 ± 0.01	0.03 ± 0.01	0.35 ± 0.10	23,903	1,020	6,318	48	35.7	18	Columbia	(Hanford *et al.* 2002)
4m	0.19	0.15	0.12	-0.38	35,891	637	11,262	4	35.4	12	Gotland	(Nasholm 2002)
4m	0.17	0.12	0.05	-0.39	30,698	710	8,896	11	35.2	15	Swedish White	(Nasholm 2002)
30d	0.11 ± 0.03	0.03 ± 0.03	0.11 ± 0.03	-	3,145	130	1,131	10	7.7	19	Sabi	(Matika *et al.* 2003)
60d	0.13 ± 0.03	0.06 ± 0.03	0.06 ± 0.02	-	3,769	130	1,131	10	11.0	19	Sabi	(Matika *et al.* 2003)
120d	0.13 ± 0.04	0.06 ± 0.03	0.07 ± 0.02	-	3,537	130	1,131	10	17.8	17	Sabi	(Matika *et al.* 2003)
20w	0.17 ± 0.04	-	0.20 ± 0.04	-	1,465	60	263	7	37.2	10	Scottish Blackface	(Roden *et al.* 2003)
120d	0.18 ± 0.01	0.12 ± 0.01	0.06 ± 0.01	-0.01 ±0.06	32,715	1,534	8,356	49	34.6	18	Targhee	(van Vleck *et al.* 2003)
Meat breeds												
50d	0.16*	0.14*	0.27*	-0.57*	6,395	-	-	14	20.4	19	Hampshire	(Tosh and Kemp 1994)
100d	0.39***	0.19**	0.20***	-0.74***	5,601	-	-	14	36.9	17	Hampshire	(Tosh and Kemp 1994)
50d	0.21	0.19	0.18	-0.42	29,204	-	-	14	17.6	18	Polled Dorset	(Tosh and Kemp 1994)
100d	0.25	0.08	0.19	-0.31	25,052	-	-	14	30.2	17	Polled Dorset	(Tosh and Kemp 1994)
7w	0.09	0.09	0.12	-0.39	7,518	295	2,709	12	20.1	19	Composite	(Mousa *et al.* 1999)

Table 2. Estimates of heritability for growth traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
60d	0.19	0.06	0.11	-033	12,746	604	4,276	13	32.2	17	Suffolk	(Rao and Notter 2000)
90d	0.13	0.04	0.17	0.25	2,853	171	1,221	13	47.2	15	Suffolk	(Rao and Notter 2000)
8w	0.14 ± 0.01	0.10 ± 0.01	0.08 ± 0.01	-0.36	55,683	1,804	15,244	13	24.8	21	Suffolk	(Maniatis and Pollott 2002b)
8w	0.16 ± 0.07	0.24 ± 0.09	0.06 ± 0.05	-0.95	892	106	236	8	18.5	24	Suffolk	(Maniatis and Pollott 2002a)
16w	0.09 ± 0.07	0.13 ± 0.09	0.17 ± 0.08	-0.95	892	106	236	8	31.9	18	Suffolk	(Maniatis and Pollott 2002a)
56d	0.17 ± 0.02	0.21 ± 0.03	0.03 ± 0.03	-	1,932	119	-	9	23.3	19	Suffolk	(Simm *et al.* 2002)
Post weaning weight (kg)												
Wool breeds												
8m-male	0.25 ± 0.10	-	-	-	1,614	179	-	8	-	-	Merino	(Lewer *et al.* 1994)
8m-female	0.34 ± 0.07	-	-	-	2,238	204	-	8	-	-	Merino	(Lewer *et al.* 1994)
11m-male	0.27 ± 0.09	-	-	-	2,223	205	-	8	-	-	Merino	(Lewer *et al.* 1994)
11m-female	0.43 ± 0.08	-	-	-	2,238	204	-	8	-	-	Merino	(Lewer *et al.* 1994)
12m	0.28	0.12	0.02	0.01	8,243	227	2,536	18	-	-	Merino	(Swan and Hickson 1994)
10m	0.35 ± 0.07	0.00 ± 0.05	0.13 ± 0.04	-	2,842	-	-	20	-	-	Merino	(Hickson *et al.* 1995)
9m	0.33 ± 0.04	0.08 ± 0.03	0.00 ± 0.03	0.12	4,824	404	2,600	8	31.0	8	Merino	(Mortimer and Atkins 1995)
10m	0.46	-	-	-	2,200	162	-	4	42.3	13	Merino	(Ponzoni *et al.* 1995)
10m	0.24 ± 0.05	0.15 ± 0.07	0.00 ± 0.05	-0.29	3,252	157	1,323	-	22.0	16	Merino	(Vaez Torshizi *et al.* 1996)
6m	0.18 ± 0.04	0.10 ± 0.04	-	0.86 ± 0.30	6,761	607	2,240	22	21.6	15	Merino	(Snyman *et al.* 1996)
10m	0.45 ± 0.10	-	-	-	1,278	68	969	2	46.2	16	Merino	(Brash *et al.* 1997)
9m	0.48	-	-	-	5,100	-	-	5	26.0	12	Merino	(Purvis and Swan 1997)
11m	0.24 ± 0.06	-	-	-	1,902	76	590	15	55.8	9	Dohne Merino	(Cloete *et al.* 1998)
120d	0.21 ± 0.01	-	-	-	20,505	1,260	16,338	18	29.2	22	Merino	(Nagy *et al.* 1999)
10-12m	0.30 ± 0.07	-	-	-	880	37	330	15	49.8	9	Merino	(Cloete *et al.* 2001)
10-12m	0.33 ± 0.07	0.13 ± 0.03	-	-	1,609	49	511	15	57.9	10	Dohne Merino	(Cloete *et al.* 2001)
6m	0.44 ± 0.09	0.08 ± 0.04	-	-	1,812	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
12m	0.43 ± 0.09	0.09 ± 0.04	-	-	1,803	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
12m	0.38 ± 0.08	-	-	-	1,398	100	-	2	34.4	10	Merino	(Lee *et al.* 2002)
5m	0.28 ± 0.08	0.04 ± 0.04	-	-	1,761	86	1,045	2	31.8	13	Merino	(Ingham *et al.* 2003)
Dual purpose breeds												
10m	0.22 ± 0.11	-	-	-	711	55	-	11	49.0	6	Border Leicester	(Brash *et al.* 1992)
205d	0.27	-	-	-	1,602	102	-	-	31.0	11	Romney cross	(Waldron *et al.* 1992)
90d	0.09	0.01	0.07	-0.97	-	15	352	4	22.5	14	Romanov	(Maria *et al.* 1993)
12m	0.13 ± 0.04	-	-	-	2,795	64	-	7	50.1	22	Corriedale	(Brash *et al.* 1994b)

Table 2. Estimates of heritability for growth traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
12m	0.38 ± 0.07	-	-	-	4,066	84	-	20	47.8	11	Coopworth	(Brash *et al.* 1994c)
90d	0.23 ± 0.09	0.00 ± 0.07	0.07 ± 0.07	-	922	55	-	5	28.4	18	Composite	(Fossceco and Notter 1995)
120d	0.25 ± 0.10	-	-	-	846	52	-	5	36.0	15	Composite	(Fossceco and Notter 1995)
150d	0.32 ± 0.11	-	-	-	753	52	-	5	41.3	14	Composite	(Fossceco and Notter 1995)
6m	0.41 ± 0.15	-	-	-	440	52	-	5	40.1	13	Composite	(Fossceco and Notter 1995)
6m	0.04 ± 0.07	0.28 ± 0.18	0.14 ± 0.11	-0.83	-	-	-	9	15.1	24	Tropical breed	(Pitono and James 1995)
12m	0.58	0.05	-	-	4,325	146	946	18	52.3	10	Afrino	(Snyman *et al.* 1995)
90d	0.09	0.05	0.14	-	853	54	270	-	31.7	19	Composite	(Al-Shorepy and Notter 1996)
120d	0.18	0.00	0.13	-	662	54	228	-	39.4	19	Composite	(Al-Shorepy and Notter 1996)
174d	0.21	0.07	-	0.64	4,548	131	749	13	34.5	15	Swedish finewool	(Nasholm and Danell 1996)
90d	0.28 ± 0.03	-	-	-	7,295	-	1,279	11	24.1	11	Segurena	(Analla *et al.* 1997)
7m - $\log_e$	0.23 ± 0.03	-	-	-	1,950	-	-	12	-	-	Coopworth	(Morris *et al.* 1997)
120d	0.26*	0.05*	0.08*	-	1,237	19	394	10	46.1	13	Targhee	(Notter and Hough 1997)
12m	0.26*	0.05*	0.05*	-	2,407	52	1,045	10	71.6	11	Targhee	(Notter and Hough 1997)
6m	0.23 ± 0.03	0.02 ± 0.01	0.03 ± 0.01	0.27 ± 0.16	6,864	-	-	24	32.3	15	Baluchi	(Yazdi *et al.* 1997)
12m	0.32 ± 0.03	0.02 ± 0.01	0.01 ± 0.01	-0.10 ±0.19	5,082	-	-	24	41.2	15	Baluchi	(Yazdi *et al.* 1997)
6m	0.23 ± 0.02	0.03 ± 0.01	0.03 ± 0.01	0.37 ± 0.19	6,863	-	-	24	31.4	14	Baluchi	(Yazdi *et al.* 1997)
12m	0.26 ± 0.03	0.01 ± 0.01	0.02 ± 0.01	0.34 ± 0.37	4,329	-	-	24	38.2	14	Baluchi	(Yazdi *et al.* 1997)
12m	0.49 ± 0.04	-	-	-	2,987	114	-	9	38.5	-	Romney	(Wuliji *et al.* 1998)
8-12m pooled	0.24 ± 0.04	0.05 ± 0.01	0.00 ± 0.04	-0.24 ±0.13	53,772	1,034	16,105	16	42.2	11	Coopworth	(Lewis and Beatson 1999)
8-12m	0.21 ± 0.04	0.06 ± 0.02	0.29 ± 0.02	-0.42 ±0.15	7,933	109	2,141	16	39.1	12	Coopworth	(Lewis and Beatson 1999)
8-12m	0.14 ± 0.02	0.04 ± 0.01	0.02 ± 0.01	-0.02 ±0.16	12,767	179	3,751	16	35.5	13	Coopworth	(Lewis and Beatson 1999)
8-12m	0.14 ± 0.03	0.07 ± 0.03	0.01 ± 0.02	0.00 ± 0.25	5,213	97	1,667	16	42.6	11	Coopworth	(Lewis and Beatson 1999)
8-12m	0.26 ± 0.05	0.02 ± 0.02	0.00 ± 0.02	0.20 ± 0.36	4,585	86	1,120	16	42.3	10	Coopworth	(Lewis and Beatson 1999)
8-12m	0.45 ± 0.05	0.08 ± 0.02	0.01 ± 0.01	-0.85 ±0.07	8,491	198	3,054	16	43.1	13	Coopworth	(Lewis and Beatson 1999)
8-12m	0.24 ± 0.03	0.02 ± 0.01	0.02 ± 0.01	-0.23 ±0.20	10,659	285	3,207	16	45.6	11	Coopworth	(Lewis and Beatson 1999)
8-12m	0.24 ± 0.06	0.04 ± 0.02	0.00 ± 0.02	-0.27 ±0.24	4,124	72	1,165	16	47.5	10	Coopworth	(Lewis and Beatson 1999)
10-12m	0.45 ± 0.07	0.12 ± 0.03	-	-	1,519	50	432	15	65.2	9	SA Meat Merino	(Cloete *et al.* 2001)
12m	0.26 ± 0.04	0.00 ± 0.00	0.09 ± 0.02	-	2,219	130	1,131	10	23.9	18	Sabi	(Matika *et al.* 2003)
Meat breeds												
5m	0.23 ± 0.05	-	-	-	4,894	116	-	4	38.8	7	Poll Dorset	(Atkins *et al.* 1991)
9m	0.21 ± 0.03	-	-	-	13,157	320	-	4	47.3	6	Poll Dorset	(Atkins *et al.* 1991)
9m	0.31 ± 0.09	-	-	-	2,207	108	-	11	49.0	6	Suffolk	(Brash *et al.* 1992)
7m	0.19 ± 0.06	-	-	-	2,178	89	-	2	45.2	6	Poll Dorset	(Gilmour *et al.* 1994)

Table 2. Estimates of heritability for growth traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
12m	0.11 ± 0.06	-	-	-	1,650	82	-	2	55.1	7	Poll Dorset	(Gilmour *et al.* 1994)
12m	0.25	0.04	-	-0.04 ± 0.11	4,292	-	-	6	58.0	14	Belgian Texel	(Janssens *et al.* 2000)
146d	0.20 ± 0.01	0.07 ± 0.01	0.06 ± 0.01	-0.26	87,032	1,154	11,253	8	57.3	18	Suffolk	(Maniatis and Pollott 2002b)
146d	0.16 ± 0.09	0.07 ± 0.06	0.17 ± 0.08	-0.67	892	106	236	8	39.7	20	Suffolk	(Maniatis and Pollott 2002a)
150d	0.29 ± 0.02	0.16 ± 0.03	0.05 ± 0.02	-	1,932	119	-	9	63.2	13	Suffolk	(Simm *et al.* 2002)
Hogget weight (kg)												
Wool breeds												
14m-male	0.27 ± 0.09	-	-	-	1,614	179	-	8	-	-	Merino	(Lewer *et al.* 1994)
14m-female	0.48 ± 0.09	-	-	-	2,238	204	-	8	-	-	Merino	(Lewer *et al.* 1994)
Adult	0.38 ± 0.04	0.01 ± 0.01	-	0.57	7,151	211	2,455	35	50.4	10	Merino	(van Wyk *et al.* 1994)
Adult	0.67 ± 0.09	-	-	-	2,278	126	-	2	54.5	11	Merino	(Lee *et al.* 1995)
15m	0.39 ± 0.04	0.04 ± 0.03	0.00 ± 0.03	0.42*	4,405	398	2,466	8	39.8	9	Merino	(Mortimer and Atkins 1995)
16mr	0.50	-	-	-	2,200	162	-	4	54.5	12	Merino	(Ponzoni *et al.* 1995)
13m	0.25 ± 0.10	-	-	-	654	-	-	-	27.8	-	Merino	(Woolaston *et al.* 1995)
18m	0.43 ± 0.04	0.04 ± 0.04	-	1.00 ± 0.30	6,753	685	2,560	22	35.2	13	Merino	(Snyman *et al.* 1996)
16m	0.29 ± 0.05	0.02 ± 0.09	0.00 ± 0.06	1.00	2,990	157	1,282	-	32.3	14	Merino	(Vaez Torshizi *et al.* 1996)
22m	0.29 ± 0.06	0.02 ± 0.05	0.00 ± 0.06	1.00	2,362	129	1,209	-	34.7	13	Merino	(Vaez Torshizi *et al.* 1996)
16m - rams	0.33 ± 0.09	-	-	-	1,172	68	969	2	61.3	14	Merino	(Brash *et al.* 1997)
17m	0.52 ± 0.03	0.04 ± 0.01	-	-	6,922	631	2,279	28	49.6	11	Merino	(Cloete *et al.* 1998)
15m	0.40	-	-	-	3,664	89	1,690	9	33.1	15	Merino	(Greeff and Karlsson 1998)
16m	0.32 ± 0.05	-	-	-	3,665	165	-	4	-	-	Merino	(Greeff and Karlsson 1999)
14m	0.13 ± 0.01	-	-	-	27,458	1,332	20,274	18	52.5	22	Merino	(Nagy *et al.* 1999)
15m	0.37 ± 0.10	-	-	-	896	54	-	3	33.8	-	Merino	(Rose and Pepper 1999)
15m	0.56 ± 0.17	-	-	-	896	54	-	3	29.4	-	Merino	(Rose and Pepper 1999)
Adult	0.46 ± 0.03	-	0.13 ± 0.02	-	10,520	385	3,653	8	41.8	10	Merino	(Swan *et al.* 2001)
16m	0.49 ± 0.12	0.06 ± 0.05	-	-	1,803	70	-	5	-	-	Merino	(Wuliji *et al.* 2001)
16m	0.52 ± 0.05	-	-	-	1,380	-	-	13	53.8	12	Merino	(Duguma *et al.* 2002a)
12m	0.33 ± 0.15	-	-	-	556	-	-	-	36.0	11	Merino	(Brown *et al.* 2002a)
18m	0.34 ± 0.04	0.09 ± 0.02	-	-	9,767	-	-	-	49.1	11	Merino	(Brown *et al.* 2002a)
15-17m	0.52 ± 0.03	0.05 ± 0.01	-	-	9,556	442	4,577	12	48.3	9	Merino	(Cloete *et al.* 2002a)
28m	0.34 ± 0.09	-	-	-	1,292	150	-	3	46.6	10	Merino	(Lee *et al.* 2002)
12m	0.35 ± 0.02	ns	-	-	28,825	650	6,000	14	44.2	12	Merino	(Clarke *et al.* 2003)
15m	0.49 ± 0.02	ns	-	-	43,115	1,000	9,000	14	49.0	11	Merino	(Clarke *et al.* 2003)

Table 2. Estimates of heritability for growth traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Adult	0.37 ± 0.09	-	0.40 ± 0.09	-	1,199	-	-	6	50.2	11	Merino	(Cloete *et al.* 2003)
17m	0.51 ± 0.10	-	-	-	1,020	125	-	2	63.1	13	Merino	(Fogarty *et al.* 2003)
Adult	0.49 ± 0.06	-	0.25 ± 0.06	-	2,955	216	1,107	6	-	-	Merino	(Cloete *et al.* 2004)
Dual purpose												
13m	0.25 ± 0.08	-	-	-	1,511	101	-	9	63.5	5	Corriedale	(Brash *et al.* 1992)
14m	0.40 ± 0.10	-	-	-	2,253	58	-	9	48.7	5	Coopworth	(Brash *et al.* 1992)
14m	0.14 ± 0.04	-	-	-	3,973	208	-	9	58.4	6	Border Leicester	(Brash *et al.* 1992)
14m	0.09 ± 0.09	-	-	-	841	45	-	9	57.9	5	Gromark	(Brash *et al.* 1992)
14m	0.24 ± 0.07	-	-	-	1,312	75	-	5	48.8	10	Border Leicester	(Brash *et al.* 1994a)
14m rams	0.44 ± 0.10	-	-	-	1,454	130	-	9	57.6	5	Hyfer	(Fogarty *et al.* 1994)
12-18m ewes	0.44 ± 0.10	*	-	-	1,619	130	-	8	50.0	14	Hyfer	(Fogarty *et al.* 1994)
18m	0.56	0.06	-	-	4,325	146	946	18	53.8	10	Afrino	(Snyman *et al.* 1995)
Adult	0.29	0.22	-	0.14	510	41	341	13	65.8	13	Swedish finewool	(Nasholm and Danell 1996)
Adult	0.17	-	0.04	-	3,110	220	-	8	79.6	12	Canadian	(Hansen and Shrestha 1997)
Adult	0.14	-	0.14	-	3,962	300	-	8	72.7	12	Outaouais	(Hansen and Shrestha 1997)
Adult	0.33	-	0.00	-	3,988	291	-	8	74.8	12	Rideau	(Hansen and Shrestha 1997)
14m	0.39 (0.09) [1]	0.09 (0.03)	-	-0.45 (0.18)	1,880	50	-	5	47.8	14	Corriedale	(Jara *et al.* 1998)
13m	0.19	-	-	-	386	-	-	9	53.3	11	Welsh Mountain	(Saatci *et al.* 1998)
18m	0.43 ± 0.10	-	-	-	557	40	316	-	53.0	14	Rambouillet	(Lee *et al.* 2000)
14m	0.29 ± 0.07	-	-	-	1,022	87	-	-	42.3	25	Welsh Mountain	(Ap Dewi *et al.* 2002)
Adult	0.49 ± 0.04	-	-	-	2,376	150	-	-	36.1	11	Welsh Mountain	(Ap Dewi *et al.* 2002)
Adult	0.26 ± 0.06	-	0.00 ± 0.04	-	3,746	762	2,095	8	75.1	-	Composite	(Hansen and Shrestha 2002)
18m	0.37 ± 0.05	0.00 ± 0.00	0.04 ± 0.02	-	2,035	130	1,131	10	34.4	15	Sabi	(Matika *et al.* 2003)
Adult	0.58 ± 0.03	-	0.13 ± 0.03	-	3,654	130	1,131	10	37.9	12	Sabi	(Matika *et al.* 2003)
Meat breeds												
14m	0.31 ± 0.04	-	-	-	10,108	245	-	4	56.3	5	Poll Dorset	(Atkins *et al.* 1991)
14m	0.25 ± 0.10	-	-	-	1,427	80	-	11	60.8	5	Suffolk	(Brash *et al.* 1992)
16m	0.37 ± 0.18	-	-	-	510	19	-	2	67.8	5	Poll Dorset	(Gilmour *et al.* 1994)
19m	0.26	0.01	0.02	1.00	2,221	295	2,709	12	72.3	9	Composite	(Mousa *et al.* 1999)
31m	0.45	0.03	0.00	-0.12	1,538	295	2,709	12	82.7	9	Composite	(Mousa *et al.* 1999)

Table 2. Estimates of heritability for growth traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Growth - daily gain (g/d), **gain** (kg)												
0 - W40dτ	0.26	0.17	0.02	-0.99	2,086	15	352	4	220	17	Romanov	(Maria *et al.* 1993)
W40 - 90d	0.15	0.01	0.03	0.99	2,086	15	352	4	232	15	Romanov	(Maria *et al.* 1993)
0 - 4m	0.13 ± 0.02	0.18 ± 0.03	-	-0.17	7,740	215	-	48	-	-	Dormer	(van Wyk *et al.* 1993)
0 - W93d	0.12 ± 0.08	0.07 ± 0.05	0.13 ± 0.07	-	916	41	451	3	289	14	Crossbreed	(Hall *et al.* 1995)
0 - W	0.08 ± 0.03	0.04 ± 0.05	0.12 ± 0.04	0.04	-	-	-	9	82	31	Tropical breed	(Pitono and James 1995)
W105 – 174d	0.14	0.03	-	0.07	4,498	131	745	13	122	30	Swedish finewool	(Nasholm and Danell 1996)
W60 – 120d	0.33*	-	-	-	1,237	19	394	10	310	20	Targhee	(Notter and Hough 1997)
W120 – 365d	0.20*	-	-	-	2,407	52	1,045	10	130	20	Targhee	(Notter and Hough 1997)
0 – W100d	0.19 ± 0.03	0.03 ± 0.01	0.04 ± 0.01	0.28 ± 0.16	7,706	-	-	24	195	19	Baluchi	(Yazdi *et al.* 1997)
100 – 365d	0.19 ± 0.03	0.02 ± 0.01	0.01 ± 0.01	-0.64 ± 0.16	4,734	-	-	24	63	29	Baluchi	(Yazdi *et al.* 1997)
0 – 100d	0.12 ± 0.02	0.03 ± 0.01	0.06 ± 0.01	0.23 ± 0.18	8,444	-	-	24	192	19	Baluchi	(Yazdi *et al.* 1997)
100 – 365d	0.15 ± 0.03	0.01 ± 0.01	0.01 ± 0.01	-0.46 ± 0.24	4,134	-	-	24	57	30	Baluchi	(Yazdi *et al.* 1997)
0 - 30d	0.16	0.04	0.03	-0.45	25,564	1,103	6,988	7	305	23	Swiss B-B Mtn	(Hagger 1998)
0 - 30d	0.14	0.07	0.03	-0.44	26,391	1,396	9,765	7	351	22	Swiss W Alpine	(Hagger 1998)
Gain 0 – 50d	0.19 ± 0.10	0.09 ± 0.07	0.12 ± 0.06	0.04 ± 0.06	946	59	286	5	15.7	15	Dala	(Larsgard and Olesen 1998)
Gain 50 – 125d	0.02 ± 0.09	0.12 ± 0.07	0.06 ± 0.06	0.02 ± 0.06	952	58	288	5	22.2	16	Dala	(Larsgard and Olesen 1998)
Gain 0 – 125d	0.09 ± 0.10	0.16 ± 0.08	0.12 ± 0.06	-0.02 ± 0.07	952	58	288	5	37.9	16	Dala	(Larsgard and Olesen 1998)
63 – 130d	0.21	0.01	0.03	-0.52	6,752	295	2,709	12	365	19	Composite	(Mousa *et al.* 1999)
0 - 120d	0.07	0.04	0.07	0.21	7,750	263	2,095	23	262	16	Columbia	(Bromley *et al.* 2000)
0 - 120d	0.20	0.05	0.04	-0.12	9,524	246	2,285	23	247	15	Polypay	(Bromley *et al.* 2000)
0 - 120d	0.11	0.05	0.07	0.52	9,530	451	2,435	23	233	15	Rambouillet	(Bromley *et al.* 2000)
0 - 120d	0.16	0.04	0.09	0.12	9,321	492	2,577	23	241	17	Targhee	(Bromley *et al.* 2000)
Gain 60 – 120d	0.27	-	-	-	1,406	22	1,406	13	18.0	20	Targhee	(Rao and Notter 2000)
Gain 120 –365d	0.19	-	-	-	3,241	66	1,432	13	32.3	20	Targhee	(Rao and Notter 2000)
Gain 60 – 120d	0.17	-	-	-	5,621	384	2,362	13	23.5	23	Suffolk	(Rao and Notter 2000)
Gain 60 – 120d	0.22	-	-	-	3,046	95	1,113	13	19.4	20	Polypay	(Rao and Notter 2000)
0 – 108d	0.22	-	-	-	21,121	832	-	18	295	6	INRA-401	(Bibe *et al.* 2002)
0 - 120d	0.27	0.04	0.06	-0.03	8,310	681	2,538	19	-	-	Merino	(Duguma *et al.* 2002b)
0 – 120d	0.17 ± 0.04	0.04 ± 0.03	0.09 ± 0.03	-	3,307	130	1,131	10	127	25	Sabi	(Matika *et al.* 2003)

* P<0.05, ** P<0.01, *** P<0.001, ns not significant

[1] Bayesian estimate, mean (standard deviation)

W = weaning

Table 3. Estimates of heritability for meat and carcass traits

Estimates of heritability ($h^2 \pm$ s.e.), maternal heritability ($m^2 \pm$s.e.), permanent environmental effect ($c^2 \pm$ s.e.), genetic correlation between direct and maternal effects ($r_{am} \pm$ s.e.), numbers of records, sires dams and years of records, mean (kg), coefficient of variation (CV %), breed and reference

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Carcass weight (kg)												
7m	0.26	-	-	-	1,602	102	-	2	14.6	13	Romney Cross	(Waldron *et al.* 1992)
7m	0.08 ± 0.03	-	-	-	3,592	350	-	5	18.7	16	Crossbred	(Pollott *et al.* 1994)
16m	0.36 ± 0.13	-	-	-	829	63	-	-	23.3	11	Merino	(Greeff *et al.* 2003)
18m	0.18 ± 0.06	-	-	-	1,708	130	1,131	10	15.4	17	Sabi	(Matika *et al.* 2003)
Dressing yield (%)												
4m	0.53	-	-	-	1,215	30	717	2	47.7	5	Inra401	(Moreno *et al.* 2001)
4m	0.35	-	-	-	21,121	832	-	13	46.9	3	French meat	(Bibe *et al.* 2002)
17m	0.39 ± 0.10	-	-	-	1,045	125	748	2	40.7	9	Merino	(Fogarty *et al.* 2003)
Fat [1] – live (mm)												
5m	0.28 ± 0.05	-	-	-	4,894	116	-	11	1.7	13	Poll Dorset	(Atkins *et al.* 1991)
5m adj wt	0.22 ± 0.05	-	-	-	4,894	116	-	11	1.7	10	Poll Dorset	(Atkins *et al.* 1991)
9m	0.26 ± 0.03	-	-	-	13,157	320	-	11	1.9	12	Poll Dorset	(Atkins *et al.* 1991)
9m adj wt	0.32 ± 0.04	-	-	-	13,157	320	-	11	1.9	8	Poll Dorset	(Atkins *et al.* 1991)
14m	0.31 ± 0.04	-	-	-	10,108	245	-	11	2.0	12	Poll Dorset	(Atkins *et al.* 1991)
14m adj wt	0.33 ± 0.04	-	-	-	10,108	245	-	11	2.0	10	Poll Dorset	(Atkins *et al.* 1991)
10m	0.07 ± 0.08	-	-	-	711	55	-	11	3.5	14	Border Leicester	(Brash *et al.* 1992)
10m adj wt	0.06 ± 0.08	-	-	-	711	55	-	11	3.7	11	Border Leicester	(Brash *et al.* 1992)
14m	0.40 ± 0.07	-	-	-	3,973	208	-	11	4.2	13	Border Leicester	(Brash *et al.* 1992)
14m adj wt	0.44 ± 0.07	-	-	-	3,973	208	-	11	4.2	11	Border Leicester	(Brash *et al.* 1992)
9m	0.23 ± 0.07	-	-	-	2,207	108	-	11	3.8	12	Suffolk	(Brash *et al.* 1992)
9m adj wt	0.33 ± 0.09	-	-	-	2,207	108	-	11	3.8	10	Suffolk	(Brash *et al.* 1992)
14m	0.26 ± 0.10	-	-	-	1,427	80	-	11	4.4	10	Suffolk	(Brash *et al.* 1992)
14m adj wt	0.21 ± 0.09	-	-	-	1,427	80	-	11	4.4	9	Suffolk	(Brash *et al.* 1992)
13m	0.37 ± 0.10	-	-	-	1,511	101	-	11	3.8	12	Corriedale	(Brash *et al.* 1992)
13m adj wt	0.35 ± 0.10	-	-	-	1,511	101	-	11	4.1	10	Corriedale	(Brash *et al.* 1992)
14m	0.21 ± 0.07	-	-	-	2,253	58	-	11	4.2	11	Coopworth	(Brash *et al.* 1992)
14m adj wt	0.18 ± 0.06	-	-	-	2,253	58	-	11	4.2	9	Coopworth	(Brash *et al.* 1992)
14m	0.09 ± 0.08	-	-	-	841	45	-	11	4.1	12	Gromark	(Brash *et al.* 1992)
14m adj wt	0.12 ± 0.09	-	-	-	841	45	-	11	4.1	11	Gromark	(Brash *et al.* 1992)
7m	0.20	-	-	-	1,602	102	-	2	2.0	35	Romney Cross	(Waldron *et al.* 1992)
12m	0.13 ± 0.04	-	-	-	2,184	50	-	20	4.8	27	Coopworth	(Brash *et al.* 1994c)

***Table 3. Estimates of heritability for meat and carcass traits** - Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
15m	0.22 ± 0.08	-	-	-	1,454	130	-	9	2.9	14	Hyfer	(Fogarty *et al.* 1994)
15m adj wt	0.28 ± 0.08	-	-	-	1,454	130	-	9	2.6	14	Hyfer	(Fogarty *et al.* 1994)
7m	0.01 ± 0.03	-	-	-	2,178	89	-	2	3.1	12	Poll Dorset	(Gilmour *et al.* 1994)
7m adj wt	0.11 ± 0.05	-	-	-	2,178	89	-	2	3.1	10	Poll Dorset	(Gilmour *et al.* 1994)
12m	0.18 ± 0.07	-	-	-	1,650	82	-	2	3.9	12	Poll Dorset	(Gilmour *et al.* 1994)
12m adj wt	0.33 ± 0.09	-	-	-	1,650	82	-	2	3.9	10	Poll Dorset	(Gilmour *et al.* 1994)
16m	0.28 ± 0.15	-	-	-	510	19	-	2	4.8	11	Poll Dorset	(Gilmour *et al.* 1994)
16m adj wt	0.29 ± 0.16	-	-	-	510	19	-	2	4.8	9	Poll Dorset	(Gilmour *et al.* 1994)
GR 7m adj wt	0.10 ± 0.05	-	-	-	2,065	76	-	2	9.6	9	Poll Dorset	(Gilmour *et al.* 1994)
4m	0.14	-	0.12	-	1,896	23	1,668	2	2.1	35	Scottish Blackface	(Conington *et al.* 1995)
Adult	0.47 ± 0.08	-	-	-	2,278	126	-	2	3.5	25	Merino	(Lee *et al.* 1995)
7m $\log_e$ C	0.23 ± 0.03	-	-	-	1,932	-	-	12	-	-	Coopworth	(Morris *et al.* 1997)
7m $\log_e$ C adj wt	0.38 ± 0.03	-	-	-	1,936	-	-	12	-	-	Coopworth	(Morris *et al.* 1997)
5m	0.05 ± 0.06	0.04 ± 0.06	0.13 ± 0.06	0.04 ± 0.05	952	58	288	5	2.2	34	Dala Cross	(Larsgard and Olesen 1998)
14m	0.24 ± 0.07	-	-	-	1,024	87	-	22	3.5	46	Welsh Mountain	(Ap Dewi *et al.* 2002)
9m	0.06 ± 0.07	-	-	-	1,398	-	-	2	1.8	20	Merino	(Lee *et al.* 2002)
15m	0.22 ± 0.08	-	-	-	1,292	-	-	3	2.2	25	Merino	(Lee *et al.* 2002)
5m	0.27 ± 0.01	0.07 ± 0.01	0.04 ± 0.01	-0.38	28,673	1,152	11,200	8	3.7	32	Suffolk	(Maniatis and Pollott 2002b)
5m	0.19 ± 0.07	0.05 ± 0.04	0.07 ± 0.06	0.05	892	106	236	8	2.2	35	Suffolk	(Maniatis and Pollott 2002a)
5m	0.56 ± 0.02	0.08 ± 0.03	0.11 ± 0.03		1,932	119	-	9	7.4	22	Suffolk	(Simm *et al.* 2002)
12m	0.19 ± 0.03	ns	-	-	6,412	150	1,300	7	2.2	20	Merino	(Clarke *et al.* 2003)
15m	0.19 ± 0.03	ns	-	-	5,273	100	1,100	7	2.7	19	Merino	(Clarke *et al.* 2003)
16m adj wt	0.19 ± 0.04	-	-	-	3,261	96	-	-	2.8	23	Merino	(Greeff *et al.* 2003)
5m adj wt	0.26 ± 0.07	-	-	-	1,657	86	1,045	2	1.4	42	Merino	(Ingham *et al.* 2003)
6m	0.44 ± 0.08	-	0.08 ± 0.04	-	1,465	60	263	7	2.5	41	Scottish Blackface	(Roden *et al.* 2003)
Fat [1] – carcass (mm)												
C 7m	0.28	-	-	-	1,602	102	-	2	2.4	48	Romney Cross	(Waldron *et al.* 1992)
GR 7m	0.26	-	-	-	1,602	102	-	2	6.8	35	Romney Cross	(Waldron *et al.* 1992)
C 7m	0.31 ± 0.05	-	-	-	3,592	350	-	5	3.6	53	Crossbred	(Pollott *et al.* 1994)
C 4m	0.40	-	-	-	1,208	30	717	2	3.5	40	Inra401	(Moreno *et al.* 2001)
C 4m	0.29	-	-	-	7,491	832	-	13	4.1	19	French meat	(Bibe *et al.* 2002)
GR 17m	0.33 ± 0.09	-	-	-	1,045	125	748	2	8.3	47	Merino	(Fogarty *et al.* 2003)
C 17m	0.20 ± 0.08	-	-	-	1,045	125	748	2	2.0	74	Merino	(Fogarty *et al.* 2003)
C 16m	0.28 ± 0.10	-	-	-	829	63	-	-	1.9	43	Merino	(Greeff *et al.* 2003)

***Table 3. Estimates of heritability for meat and carcass traits** - Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
GR 16m	0.38 ± 0.10	-	-	-	829	63	-	-	4.5	40	Merino	(Greeff *et al.* 2003)
Muscle ^{2} – live (mm)												
EMD 7m	0.15 ± 0.05	-	-	-	2,178	89	-	2	24.0	10	Poll Dorset	(Gilmour *et al.* 1994)
EMD 7m adj wt	0.15 ± 0.06	-	-	-	2,178	89	-	2	24.0	10	Poll Dorset	(Gilmour *et al.* 1994)
EMD 12m	0.11 ± 0.06	-	-	-	1,650	82	-	2	27.0	11	Poll Dorset	(Gilmour *et al.* 1994)
EMD 12m adj wt	0.15 ± 0.06	-	-	-	1,650	82	-	2	27.0	10	Poll Dorset	(Gilmour *et al.* 1994)
EMD 16m	0.16 ± 0.11	-	-	-	510	19	-	2	30.0	8	Poll Dorset	(Gilmour *et al.* 1994)
EMD 16m adj wt	0.19 ± 0.12	-	-	-	510	19	-	2	30.0	9	Poll Dorset	(Gilmour *et al.* 1994)
EMW 7m	0.05 ± 0.04	-	-	-	2,178	89	-	2	59.0	9	Poll Dorset	(Gilmour *et al.* 1994)
EMW 7m adj wt	0.03 ± 0.03	-	-	-	2,178	89	-	2	59.0	8	Poll Dorset	(Gilmour *et al.* 1994)
EMW 12m	0.04 ± 0.03	-	-	-	1,650	82	-	2	64.0	9	Poll Dorset	(Gilmour *et al.* 1994)
EMW 12m adj wt	0.01 ± 0.02	-	-	-	1,650	82	-	2	64.0	7	Poll Dorset	(Gilmour *et al.* 1994)
EMW 16m	0.12 ± 0.10	-	-	-	510	19	-	2	66.0	7	Poll Dorset	(Gilmour *et al.* 1994)
EMW 16m adj wt	0.15 ± 0.11	-	-	-	510	19	-	2	66.0	7	Poll Dorset	(Gilmour *et al.* 1994)
EMA 7m (cm^2)	0.14 ± 0.05	-	-	-	2,178	89	-	2	11.2	8	Poll Dorset	(Gilmour *et al.* 1994)
EMA 7m adj wt	0.14 ± 0.05	-	-	-	2,178	89	-	2	11.2	7	Poll Dorset	(Gilmour *et al.* 1994)
EMA 12m (cm^2)	0.08 ± 0.05	-	-	-	1,650	82	-	2	13.6	9	Poll Dorset	(Gilmour *et al.* 1994)
EMA 12m adj wt	0.12 ± 0.06	-	-	-	1,650	82	-	2	13.6	7	Poll Dorset	(Gilmour *et al.* 1994)
EMA 16m (cm^2)	0.15 ± 0.11	-	-	-	510	19	-	2	15.6	7	Poll Dorset	(Gilmour *et al.* 1994)
EMA 16m adj wt	0.18 ± 0.12	-	-	-	510	19	-	2	15.6	6	Poll Dorset	(Gilmour *et al.* 1994)
EMD 4m	0.23	-	0.10	-	1,896	23	1,668	2	17.7	11	Scottish Blackface	(Conington *et al.* 1995)
EMD 5m	0.32 ± 0.09	0.05 ± 0.11	0.08 ± 0.05	-0.04 ± 0.09	952	58	288	5	24.0	11	Dala Cross	(Larsgard and Olesen 1998)
EMD 14m	0.22 ± 0.07	-	-	-	1,024	87	-	22	23.2	13	Welsh Mountain	(Ap Dewi *et al.* 2002)
EMD 5m	0.29 ± 0.01	0.05 ± 0.01	0.02 ± 0.01	-0.22	28,914	1,154	11,246	8	30.4	9	Suffolk	(Maniatis and Pollott 2002b)
EMD 5m	0.09 ± 0.07	0.03 ± 0.03	0.10 ± 0.05	0.17	892	106	236	8	25.7	10	Suffolk	(Maniatis and Pollott 2002a)
EMD 5m	0.41 ± 0.02	0.16 ± 0.03	0.07 ± 0.03	-	1,932	119	-	9	30.0	9	Suffolk	(Simm *et al.* 2002)
EMD 12m	0.27 ± 0.04	0.14 ± 0.03	-	-	6,435	150	1,300	7	22.1	8	Merino	(Clarke *et al.* 2003)
EMD 15m	0.26 ± 0.05	ns	-	-	4,906	100	1,000	7	22.9	6	Merino	(Clarke *et al.* 2003)
EMD 16m adj wt	0.24 ± 0.03	-	-	-	3,261	96	-	-	24.7	9	Merino	(Greeff *et al.* 2003)
EMD 5m adj wt	0.35 ± 0.07	-	-	-	1,657	86	1,045	2	18.9	16	Merino	(Ingham *et al.* 2003)
EMD6m	0.27 ± 0.06	-	0.11 ± 0.06	-	1,465	60	263	7	22.3	10	Scottish Blackface	(Roden *et al.* 2003)
EMW6m	0.06 ± 0.04	-	0.08 ± 0.05	-	1,465	60	263	7	42.4	9	Scottish Blackface	(Roden *et al.* 2003)

Table 3. Estimates of heritability for meat and carcass traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Muscle [2]– carcass (mm)												
EMW 7m	0.32 ± 0.05	-	-	-	3,592	350	-	5	57.0	7	Crossbred	(Pollott *et al.* 1994)
EMA 4m (cm^2)	0.57	-	-	-	442	30	717	2	12.0	13	Inra401	(Moreno *et al.* 2001)
EMA 4m (cm^2)	0.59	-	-	-	2,500	832	-	13	13.1	7	French meat	(Bibe *et al.* 2002)
EMD 17m	0.27 ± 0.08	-	-	-	1,045	125	748	2	30.4	13	Merino	(Fogarty *et al.* 2003)
EMW 17m	0.15 ± 0.07	-	-	-	1,045	125	748	2	62.2	8	Merino	(Fogarty *et al.* 2003)
EMA 17m (cm^2)	0.23 ± 0.08	-	-	-	1,045	125	748	2	15.4	18	Merino	(Fogarty *et al.* 2003)
EMD 16m	0.31 ± 0.10	-	-	-	829	63	-	-	29.1	10	Merino	(Greeff *et al.* 2003)
EMW 16m	0.40 ± 0.11	-	-	-	829	63	-	-	63.0	7	Merino	(Greeff *et al.* 2003)
EMA 16m (cm^2)	0.33 ± 0.10	-	-	-	829	63	-	-	18.6	14	Merino	(Greeff *et al.* 2003)
Conformation												
Carcass	0.29 ± 0.05	-	-	-	3,592	350	-	5	7.7	30	Crossbred	(Pollott *et al.* 1994)
Carcass	0.20 ± 0.05	-	0.05 ± 0.02	-	1,252	44	-	2	9.7	19	Suffolk cross	(Jones *et al.* 1999)
Carcass	0.37	-	-	-	1,210	30	717	2	9.8	16	Inra401	(Moreno *et al.* 2001)
Carcass	0.30	-	-	-	7,491	832	-	13	10.8	6	French meat	(Bibe *et al.* 2002)
Meat yield												
Lean (kg)	0.37	-	-	-	1,602	102	-	2	7.8	13	Romney Cross	(Waldron *et al.* 1992)
Fat (kg)	0.33	-	-	-	1,602	102	-	2	3.1	25	Romney Cross	(Waldron *et al.* 1992)
Lean (g/kg)	0.33 ± 0.06	-	0.01 ± 0.02	-	1,999	67	480	3	528	5	Suffolk cross	(Jones *et al.* 1999)
Fat-subcut (g/kg)	0.29 ± 0.05	-	0.03 ± 0.02	-	1,999	67	480	3	133	18	Suffolk cross	(Jones *et al.* 1999)
Meat pH												
17m	0.27 ± 0.09	-	-	-	957	125	748	2	6.02	5	Merino	(Fogarty *et al.* 2003)
16m	0.08 ± 0.07	-	-	-	829	63	-	-	5.95	7	Merino	(Greeff *et al.* 2003)
Meat colour [3]												
*L** 17m	0.14 ± 0.07	-	-	-	1,035	125	748	2	33.5	10	Merino	(Fogarty *et al.* 2003)
*a** 17m	0.02 ± 0.06	-	-	-	1,011	125	748	2	18.4	16	Merino	(Fogarty *et al.* 2003)
*b** 17m	0.04 ± 0.06	-	-	-	1,005	125	748	2	8.4	20	Merino	(Fogarty *et al.* 2003)
*L** 16m	0.19 ± 0.08	-	-	-	829	63	-	-	34.2	9	Merino	(Greeff *et al.* 2003)
*a** 16m	0.07 ± 0.06	-	-	-	829	63	-	-	22.5	16	Merino	(Greeff *et al.* 2003)
*b** 16m	0.06 ± 0.06	-	-	-	829	63	-	-	10.3	22	Merino	(Greeff *et al.* 2003)

[1] Fat measurements generally at or near the C site (45 mm from midline over the 12th rib) or GR (tissue depth 110 mm from midline over the 12th rib)
[2] Muscle measurements, eye muscle depth (EMD), width (EMW) and area (EMA), generally near the 12th rib
[3] Meat colour measured by a chromameter, relative lightness (*L**), redness (*a**) and yellowness (*b**)

Table 4. Estimates of heritability for reproduction traits

Estimates of heritability ($h^2 \pm$ s.e.), maternal heritability ($m^2 \pm$s.e.), permanent environmental effect ($c^2 \pm$ s.e.), genetic correlation between direct and maternal effects ($r_{am} \pm$ s.e.), numbers of records, ewes, sires, dams and years of records, mean, coefficient of variation (CV %), breed and reference

Trait	h^2	m^2	c^2	r_{am}	Record	Ewes	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Number of lambs weaned per ewe joined [NLW/EJ]													
	0.04 ± 0.01	-	0.04 ± 0.01	-	8,243	2,044	72	-	21	1.02	63	Dorset	(Brash *et al.* 1994d)
	0.04 ± 0.02	-	0.08 ± 0.02	-	4,707	1,619	130	-	8	0.86	83	Hyfer	(Fogarty *et al.* 1994)
	0.09 [1]	-	-	-	8,590	-	193	-	29	1.11	-	Merino	(Olivier *et al.* 1998)
	0.18 [1]	-	-	-	8,777	-	420	-	19	0.64	-	Merino	(Olivier *et al.* 1998)
	0.19 [1]	-	-	-	3,580	-	113	-	26	-	-	Afrino	(Snyman *et al.* 1998b)
	0.04 ± 0.01	-	0.09 ± 0.02	-	10,520	3,653	385	-	8	0.72	71	Merino	(Swan *et al.* 2001)
	0.06 ± 0.01	-	0.03 ± 0.01	-	31,401	8,379	916	4,152	49	0.91	70	Columbia	(Hanford *et al.* 2002)
	0.07	-	-	-	22,938	7,642	-	-	9	1.38	48	Composite	(Rosati *et al.* 2002)
Mean 4 yrs	0.16 ± 0.05	-	-	-	2,073	2,073	158	-	4	0.90	47	Merino	(Ingham 2003)
	0.02 [1]	-	-	-	3,958	1,131	130		11	0.84	63	Sabi	(Matika *et al.* 2003)
	0.04 ± 0.02	-	0.11± 0.03	-	2,955	1,107	216	-	15	1.04	60	Merino	(Cloete *et al.* 2004)
Number of lambs born per ewe joined [NLB/EJ]													
	0.00 ± 0.01		0.06 ± 0.01	-	7,395	1,604	165	-	16	0.99	71	Border Leicester	(Brash *et al.* 1994a)
	0.03 ± 0.02	-	0.02 ± 0.02	-	3,740	980	114	-	11	1.48	48	Corriedale	(Brash *et al.* 1994b)
	0.06 ± 0.02	-	0.04 ± 0.02	-	10,016	2,488	81	-	21	1.20	47	Dorset	(Brash *et al.* 1994d)
	0.09 ± 0.03	-	0.05 ± 0.03	-	4,707	1,619	130	-	8	1.15	74	Hyfer	(Fogarty *et al.* 1994)
	0.05 ± 0.02	-	0.04 ± 0.25	-	1,931	351	-	-	-	1.0	-	Merino	(Woolaston *et al.* 1995)
	0.06	-	0.03	-	3,121	725	220	-	8	1.28	74	Canadian	(Hansen and Shrestha 1997)
	0.16	-	0.00	-	3,979	971	300	-	8	1.89	68	Outaouais	(Hansen and Shrestha 1997)
	0.06	-	0.02	-	4,006	1,015	291	-	8	1.90	65	Rideau	(Hansen and Shrestha 1997)
	0.13 [1]	-	-	-	8,590	-	193	-	29	1.34	-	Merino	(Olivier *et al.* 1998)
	0.20 [1]	-	-	-	8,777	-	420	-	19	0.74	-	Merino	(Olivier *et al.* 1998)
	0.27	-	-	-	3,580	-	113	-	26	-	-	Afrino	(Snyman *et al.* 1998b)
	0.09 ± 0.01	-	0.03 ± 0.01	-	31,401	8,379	916	4,152	49	1.28	50	Columbia	(Hanford *et al.* 2002)
Feb lambing	0.19 ± 0.06	-	0.00 ± 0.04	-	3,746	2,095	762	-	8	1.49	-	Composite	(Hansen and Shrestha 2002)
Jun lambing	0.18 ± 0.06	-	0.02 ± 0.04	-	3,746	2,090	727	-	8	1.78	-	Composite	(Hansen and Shrestha 2002)
Oct lambing	0.08 ± 0.06	-	0.00 ± 0.05	-	3,554	1,995	743	-	8	1.65	-	Composite	(Hansen and Shrestha 2002)
	0.09	0.01	0.06	0.38	22,938	7,642	-	-	9	1.53	53	Composite	(Rosati *et al.* 2002)
	0.06 [1]	-	-	-	3,958	1,131	130	-	11	1.02	48	Sabi	(Matika *et al.* 2003)

Table 4. Estimates of heritability for reproduction traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Record	Ewes	Sires	Dams	Yrs	Mean	CV	Breed	Reference
	0.10 ± 0.01	0.00 ± 0.01	0.01 ± 0.01	-	37,020	9,871	1,369	5,288	49	1.32	47	Targhee	(van Vleck *et al.* 2003)
	0.10 ± 0.02	-	0.07 ± 0.03	-	2,955	1,107	216	-	16	1.41	41	Merino	(Cloete *et al.* 2004)
Weight of lamb weaned per ewe joined [WW/EJ] (kg)													
Deviation	0.06 ± 0.02	-	0.09 ± 0.02	-	4,707	1,619	130	-	8	1.0	84	Hyfer	(Fogarty *et al.* 1994)
Sum 3 yrs	0.17 ± 0.07	-	-	-	640	640	-	-	23	116.8	28	Afrino	(Snyman *et al.* 1997)
Sum 4 yrs	0.26 ± 0.05	-	-	-	1,891	1,891	-	-	22	54.4	48	Merino	(Snyman *et al.* 1997)
Sum 4 yrs	0.10 ± 0.05	-	-	-	1,195	1,195	-	-	28	122.0	33	Merino	(Snyman *et al.* 1997)
Sum 3 yrs	0.15 ± 0.04	-	-	-	2,718	2,718	268	1,498	12	52.1	50	Merino	(Cloete *et al.* 2002b)
	0.11	0.04	0.05	0.04	22,938	7,642	-	-	9	17.9	35	Composite	(Rosati *et al.* 2002)
	0.04 ± 0.02	-	0.11 ± 0.03	-	2,955	1,107	216	-	16	21.0	61	Merino	(Cloete *et al.* 2004)
Number of lambs weaned per ewe lambing [NLW/EL]													
	0.08 ± 0.02	-	-	-	4,724	1,383	-	-	20	2.17	44	Finn x Ilde France	(van Haandel and Visscher 1995)
	0.09 ± 0.03 [1]	-	0.10	-	3,857	-	-	-	10	1.45	-	White face	(Saboulard *et al.* 1995)
	0.03	-	0.07	-	5,140	1,941	241	1,129	23	1.28	47	Columbia	(Bromley *et al.* 2000)
	0.05	-	0.02	-	7,095	3,261	500	1,953	23	1.39	43	Polypay	(Bromley *et al.* 2000)
	0.06	-	0.04	-	5,695	2,268	404	1,337	23	1.28	46	Rambouillet	(Bromley *et al.* 2000)
	0.07	-	0.02	-	6,452	2,402	453	1,382	23	1.22	49	Targhee	(Bromley *et al.* 2000)
	0.01	0.04	-	0.89	13,533	7,642	-	-	9	1.48	43	Composite	(Rosati *et al.* 2002)
Sum 4 yrs	0.17 ± 0.07	-	-	-	818	818	371	689	19	4.05	28	Merino	(Schoeman *et al.* 2002)
	0.04 [1]	-	-	-	3,464	1,131	130	-	11	0.96	49	Sabi	(Matika *et al.* 2003)
Weight of lamb weaned per ewe lambing [WW/EL] (kg)													
Art rear 91d	0.03	-	0.02	-	1,805	505	205	-	8	54.4	38	Canadian	(Hansen and Shrestha 1997)
Art rear 91d	0.14	-	0.00	-	2,675	746	284	-	8	63.9	38	Outaouais	(Hansen and Shrestha 1997)
Art rear 91d	0.06	-	0.00	-	2,780	753	281	-	8	64.3	38	Rideau	(Hansen and Shrestha 1997)
	0.16 ± 0.01	-	0.01 ± 0.01	-	5,343	2,315	500	-	10	14.5	18	Chios	(Ligda *et al.* 2000a)
	0.02	-	0.10	-	5,140	1,941	241	1,129	23	47.6	43	Columbia	(Bromley *et al.* 2001)
	0.10	-	0.00	-	7,083	3,258	499	1,952	23	48.3	41	Polypay	(Bromley *et al.* 2001)
	0.11	-	0.05	-	5,695	2,268	418	1,337	23	43.2	43	Rambouillet	(Bromley *et al.* 2001)
	0.08	-	0.07	-	6,452	2,402	453	1,382	23	42.2	39	Targhee	(Bromley *et al.* 2001)
Lifetime	0.06	-	0.00	-	4,769	1,731	267	-	12	-	-	Columbia	(Snowder *et al.* 2001)
Lifetime	0.11	-	0.01	-	3,249	1,129	119	-	12	-	-	Polypay	(Snowder *et al.* 2001)

Table 4. Estimates of heritability for reproduction traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Record	Ewes	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Lifetime	0.08	-	0.10	-	5,336	1,704	434	-	12	-	-	Rambouillet	(Snowder *et al.* 2001)
Lifetime	0.15	-	0.02	-	4,929	1,638	435	-	12	-	-	Targhee	(Snowder *et al.* 2001)
	0.20 ± 0.03	-	-	-	8,219	3,445	189	-	22	28.1	37	Welsh Mountain	(Ap Dewi *et al.* 2002)
	0.17	0.10	0.04	0.51	13,533	7,642	-	-	9	16.6	40	Composite	(Rosati *et al.* 2002)
	0.12 ± 0.02	-	0.03 ± 0.02	-	3,318	1,131	130	-	11	19.6	17	Sabi	(Matika *et al.* 2003)
Litter size (number of lambs born per ewe lambing) [NLB/EL]													
	0.01 ± 0.02	-	0.04 ± 0.02	-	5,446	1,569	165	-	16	1.34	37	Border Leicester	(Brash *et al.* 1994a)
	0.04 ± 0.03	-	0.01 ± 0.03	-	3,433	947	114	-	11	1.62	36	Corriedale	(Brash *et al.* 1994b)
	0.08 ± 0.02	-	0.06 ± 0.02	-	9,195	2,463	81	-	21	1.31	35	Dorset	(Brash *et al.* 1994d)
	0.19 ± 0.04	-	0.07 ± 0.04	-	4,707	1,619	130	-	8	1.46	45	Hyfer	(Fogarty *et al.* 1994)
	0.20	-	-	-	37,718	-	5,105	-	5	1.45	36	Dala	(Olesen *et al.* 1994)
	0.12	-	-	-	18,633	-	2,358	-	5	1.48	34	Spaælaau	(Olesen *et al.* 1994)
	0.39[1]	-	-	-	37,718	-	5,105	-	5	1.45	36	Dala	(Olesen *et al.* 1994)
	0.26[1]	-	-	-	18,633	-	2,358	-	5	1.48	34	Spaælaau	(Olesen *et al.* 1994)
	0.00	-	-	-	953	346	61	-	5	1.41	38	Composite	(Fossceco and Notter 1995)
	0.16 ± 0.04 [1]	-	0.18	-	3,857	-	-	-	10	1.74	-	White face	(Saboulard *et al.* 1995)
	0.16 ± 0.02	-	-	-	4,724	1,383	-	-	20	2.68	33	Finn x Il de France	(van Haandel and Visscher 1995)
	0.05	-	0.10	-	1,018	378	62	-	6	1.86	34	Composite	(Al-Shorepy and Notter 1996)
	0.08 ± 0.02	-	0.06 ± 0.05	-	5,921	-	1,279	-	11	1.33	35	Segurena	(Analla *et al.* 1997)
	0.10	-	0.01	-	2,040	540	208	-	8	1.80	39	Canadian	(Hansen and Shrestha 1997)
	0.23	-	0.00	-	2,865	776	289	-	8	2.50	38	Outaouais	(Hansen and Shrestha 1997)
	0.13	-	0.00	-	2,991	784	282	-	8	2.40	38	Rideau	(Hansen and Shrestha 1997)
	0.08	-	0.03	-	1,754	1,008	252	-	12	2.49	24	Finnsheep	(Matos *et al.* 1997)
	0.16	-	0.05	-	1,747	660	182	-	11	1.47	35	Rambouillet	(Matos *et al.* 1997)
	0.08 (0.02) [2]	-	0.06 (0.01)	-	58,493	13,147	46	10,791	14	1.35	36	Rasa Aragonesa	(Altarriba *et al.* 1998)
	0.13 ± 0.04	-	0.05 ± 0.06	-	3,355	964	126	964	9	1.40	35	Merino	(Analla and Serradilla 1998)
	0.07 ± 0.05	-	0.10 ± 0.04	-	987	383	53	-	9	1.80	31	Romney	(Davis *et al.* 1998)
	0.10 ± 0.03	-	0.06± 0.03	-	2,819	1,202	110	-	9	2.05	31	Coopworth	(Davis *et al.* 1998)
	0.02 ± 0.04	-	0.14 ± 0.05	-	785	386	51	-	9	1.76	32	Perendale	(Davis *et al.* 1998)
	0.07 ± 0.02	-	0.08 ± 0.02	-	4,591	1,971	214	-	9	1.92	32	Pooled breeds	(Davis *et al.* 1998)
	0.10	-	-	-	8,075	-	-	-	5	1.95	32	Zwartbles	(de Vries *et al.* 1998)
	0.12	-	-	-	31,380	-	-	-	9	2.00	31	Swifter	(de Vries *et al.* 1998)
	0.06 ± 0.03	-	0.05 ± 0.02	-	2,553	949	120	511	10	1.25	34	Boutsico	(Kominakis *et al.* 1998)

Table 4. Estimates of heritability for reproduction traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Record	Ewes	Sires	Dams	Yrs	Mean	CV	Breed	Reference
	0.17 [1]	-	-	-	7,432	-	185		28	1.56	-	Merino	(Olivier *et al.* 1998)
	0.31 [1]	-	-	-	6,237	-	420	-	19	1.14	-	Merino	(Olivier *et al.* 1998)
	0.42 [1]	-	-	-	3,186	-	108	-	26	-	-	Afrino	(Snyman *et al.* 1998b)
	0.07	-	0.03	-	5,140	1,941	241	1,129	23	1.61	34	Columbia	(Bromley *et al.* 2000)
	0.12	-	0.01	-	7,095	3,261	500	1,953	23	1.84	33	Polypay	(Bromley *et al.* 2000)
	0.08	-	0.04	-	5,695	2,268	404	1,337	23	1.63	32	Rambouillet	(Bromley *et al.* 2000)
	0.11	-	0.01	-	6,452	2,402	453	1,382	23	1.58	33	Targhee	(Bromley *et al.* 2000)
	0.05 ± 0.02	-	0.02 ± 0.02	-	2,224	684	62	370	22	1.52	35	Rambouillet	(Lee *et al.* 2000)
	0.09	-	0.00	-	10,295	5,038	1,182	3,575	13	1.95	35	Suffolk	(Rao and Notter 2000)
	0.09	-	0.04	-	6,061	2,709	424	1,892	13	2.09	34	Polypay	(Rao and Notter 2000)
	0.11	-	0.02	-	7,591	3,131	335	2,167	13	1.69	34	Targhee	(Rao and Notter 2000)
	0.08 ± 0.02	-	0.02 ± 0.02	-	8,520	3,653	385	-	8	1.12	25	Merino	(Swan *et al.* 2001)
	0.15 ± 0.02	-	-	-	8,219	3,445	189	-	22	1.4	34	Welsh Mountain	(Ap Dewi *et al.* 2002)
	0.14 ± 0.01	-	0.00	-	52,365	26,274	-	-	3	1.51	36	White Alpine	(Hagger 2002)
	0.13 ± 0.01	-	0.08 ± 0.01	-	52,417	25,165	-	-	8	1.51	36	White Alpine	(Hagger 2002)
	0.11 ± 0.01	-	0.01 ± 0.01	-	28,864	18,913	-	-	11	1.58	34	Brown headed	(Hagger 2002)
	0.16 ± 0.01	-	0.00	-	22,500	14,953	-	-	11	1.70	37	Black-Brown	(Hagger 2002)
	0.07 ± 0.00	-	0.00	-	33,694	21,726	-	-	11	1.46	34	Valais-B Nose	(Hagger 2002)
Feb lamb	0.27 ± 0.09	-	0.00 ± 0.07	-	3,746	2,095	762	-	8	2.2	-	Composite	(Hansen and Shrestha 2002)
June lamb	0.21 ± 0.08	-	0.06 ± 0.05	-	3,746	2,090	727	-	8	2.3	-	Composite	(Hansen and Shrestha 2002)
Oct lamb	0.22 ± 0.08	-	0.00 ± 0.06	-	3,554	1,995	743	-	8	2.2	-	Composite	(Hansen and Shrestha 2002)
	0.10	0.01	0.08	0.85	13,533	7,642	-	-	9	1.87	30	Composite	(Rosati *et al.* 2002)
Sum 4 yrs	0.23 ± 0.06	-	-	-	818	818	371	689	19	5.23	19	Merino	(Schoeman *et al.* 2002)
Mean 4 yrs	0.25 ± 0.05	-	-	-	1,770	1,770	158	-	4	1.13	37	Merino	(Ingham 2003)
	0.26 [1]	-	-	-	3,462	1,131	130	-	11	1.16	31	Sabi	(Matika *et al.* 2003)
Number of lambs born alive per ewe lambing [NLBA/EL]													
	0.08 ± 0.02	-	-	-	4,724	1,383	-	-	20	2.32	40	Finn x Il de France	(van Haandel and Visscher 1995)
	0.15 ± 0.01	-	0.03 ± 0.01	-	5,343	2,315	500	-	21	1.9	40	Chios	(Ligda *et al.* 2000a)
	0.05	0.01	0.07	0.27	13,533	7,642	-	-	9	1.68	37	Composite	(Rosati *et al.* 2002)

Table 4. Estimates of heritability for reproduction traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Record	Ewes	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Fertility (number of ewes lambing per ewe joined) [EL/EJ]													
	0.01 ± 0.01	-	0.04 ± 0.01	-	7,395	1,604	165	-	7	0.74	58	Border Leicester	(Brash *et al.* 1994a)
	0.01 ± 0.02	-	0.03 ± 0.02	-	3,740	980	114	-	11	0.92	29	Corriedale	(Brash *et al.* 1994b)
	0.02 ± 0.01	-	0.00 ± 0.01	-	10,016	2,488	81	-	21	0.92	29	Dorset	(Brash *et al.* 1994d)
	0.03 ± 0.02	-	0.08 ± 0.02	-	4,707	1,619	130	-	8	0.79	51	Hyfer	(Fogarty *et al.* 1994)
	0.03 ± 0.01	-	-	-	4,724	1,383	-	-	20	0.73	53	Finn x Il de France	(van Haandel and Visscher 1995)
	0.08	-	0.03	-	3,121	725	220	-	8	0.67	66	Canadian	(Hansen and Shrestha 1997)
	0.10	-	0.00	-	3,979	971	300	-	8	0.74	58	Outaouais	(Hansen and Shrestha 1997)
	0.07	-	0.01	-	4,006	1,015	291	-	8	0.77	55	Rideau	(Hansen and Shrestha 1997)
	0.09 ± 0.13	-	-	-	525	446	63	-	5	0.78	54	Composite	(Fossceco and Notter 1995)
Spring	0.07	-	0.06	-	1,102	420	52	-	6	0.40	110	Composite	(Al-Shorepy and Notter 1996)
	0.04	-	0.09	-	2,099	1,097	254	-	12	0.84	43	Finnsheep	(Matos *et al.* 1997)
	0.03	-	0.07	-	2,032	714	186	-	11	0.84	43	Rambouillet	(Matos *et al.* 1997)
	0.07 [1]	-	-	-	8,590	-	193	-	28	-	-	Merino	(Olivier *et al.* 1998)
	0.20 [1]	-	-	-	8,777	-	420	-	19	-	-	Merino	(Olivier *et al.* 1998)
	0.20 [1]	-	-	-	3,580	-	113	-	26	-	-	Afrino	(Snyman *et al.* 1998b)
	0.07 ± 0.02	-	0.05 ± 0.02	-	10,520	3,653	385	-	8	0.81	47	Merino	(Swan *et al.* 2001)
	0.06	-	0.08	-	22,938	7,642	-	-	9	0.59	78	Composite	(Rosati *et al.* 2002)
Mean 4 yrs	0.18 ± 0.05	-	-	-	2,073	2,073	158	-	4	0.82	32	Merino	(Ingham 2003)
	0.02 [1]	-	-	-	3,958	1,131	130	-	11	0.88	36	Sabi	(Matika *et al.* 2003)
Ewe rearing ability – ewe [NLW/NLB]													
	0.00 ± 0.02	-	0.06 ± 0.02	-	3,433	947	114	-	11	0.91	27	Corriedale	(Brash *et al.* 1994b)
	0.00 ± 0.01	-	0.04 ± 0.01	-	9,950	2,021	72	-	21	0.85	42	Dorset	(Brash *et al.* 1994d)
	0.07 ± 0.03	-	0.04 ± 0.03	-	4,707	1,619	130	-	8	0.77	50	Hyfer	(Fogarty *et al.* 1994)
	0.06 ± 0.03	-	0.01	-	3,857	-	-	-	10	0.82	-	White face	(Saboulard *et al.* 1995)
	0.02 ± 0.01	-	0.13 ± 0.02	-	8,520	3,653	385	-	8	0.82	45	Merino	(Swan *et al.* 2001)
	0.12	0.03	-	0.27	13,533	7,642	-	-	9	0.72	35	Composite	(Rosati *et al.* 2002)
Mean 4 yrs	0.14 ± 0.05	-	-	-	1,770	1,770	158		4	0.69	43	Merino	(Ingham 2003)
Lamb survival - lamb													
	0.05 ± 0.05	0.05 ± 0.04	0.47 ± 0.08	-	2,844	451	40	-	3	0.81	46	Crossbreed	(Hall *et al.* 1995)
	0.11 ± 0.09 [1]	0.04 ± 0.07	0.19 ± 0.08	-	2,844	451	40	-	3	-	-	Crossbreed	(Hall *et al.* 1995)
Mortality21d	0.07	-	0.04	-	2,030	539	208	-	8	0.19	-	Canadian	(Hansen and Shrestha 1997)

Table 4. Estimates of heritability for reproduction traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Record	Ewes	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Mortality21d	0.04	-	0.03	-	2,844	774	288	-	8	0.18	-	Outaouais	(Hansen and Shrestha 1997)
Mortality21d	0.04	-	0.04	-	2,977	782	282	-	8	0.18	-	Rideau	(Hansen and Shrestha 1997)
	0.00 [1]	-	-	-	10,210	-	217	-	28	0.83	-	Merino	(Olivier *et al.* 1998)
	0.00 [1]	-	-	-	9,174	-	493	-	19	0.86	-	Merino	(Olivier *et al.* 1998)
	0.02 [1]	-	-	-	4,816	-	148	-	26	-	-	Afrino	(Snyman *et al.* 1998b)
	0.01 ± 0.01 [1]	0.04 ± 0.02	-	-0.26±0.4	25,874	14,559	218	6,771	7	0.87	-	Romney	(Lopez-Villalobos and Garrick 1999)
	0.03	0.03	-	0.44	2,554	-	349	-	10	0.82	47	Rambouillet	(Matos *et al.* 2000)
	0.09	0.19	-	0.14	3,306	-	265	-	13	0.75	57	Finnsheep	(Matos *et al.* 2000)
Perinatal	0.01 ± 0.02 [1]	0.03 ± 0.02	-	0.92±1.68	26,147	-	-	-	26	0.92	-	Romney	(Morris *et al.* 2000)
Perinatal	0.03 ± 0.01	0.01 ± 0.01	-	-0.23±0.3	26,147	-	-	-	26	0.92	29	Romney	(Morris *et al.* 2000)
Perinatal	0.02 ± 0.02 [1]	0.11 ± 0.05	-	-0.52±0.6	16,424	-	-	-	7	0.92	-	Romney	(Morris *et al.* 2000)
Perinatal	0.04 ± 0.01	0.05 ± 0.02	-	-0.38±0.3	16,424	-	-	-	7	0.92	28	Romney	(Morris *et al.* 2000)
Preweaning	-0.01 ± 0.01 [1]	0.03 ± 0.01	-	0	20,568	-	-	-	26	0.78	-	Romney	(Morris *et al.* 2000)
Preweaning	0.01 ± 0.01	0.02 ± 0.01	-	-0.03±0.4	20,568	-	-	-	26	0.78	52	Romney	(Morris *et al.* 2000)
Preweaning	0.02 ± 0.01 [1]	0.10 ± 0.03	-	-0.34±0.4	13,065	-	-	-	7	0.80	-	Romney	(Morris *et al.* 2000)
Preweaning	0.04 ± 0.01	0.07 ± 0.02	-	-0.33±0.2	13,065	-	-	-	7	0.80	48	Romney	(Morris *et al.* 2000)
Preweaning	0.09 ± 0.02	-	0.04 ± 0.02	-	12,932	-	442	4577	12	0.86	-	Merino	(Cloete *et al.* 2001)
Mort 0-44d	0.03 ± 0.02	0.07 ± 0.03	-	-0.68±0.3	8,642	-	299	2,475	13	0.15	-	Meat composite	(Southey *et al.* 2001)
Mort 44d-1y	0.07 ± 0.04	0.01 ± 0.04	-	-0.86±1.8	7,331	-	299	2,475	13	0.08	-	Meat composite	(Southey *et al.* 2001)
	0.04 [1]	-	-	-	4,041	1,131	130	-	10	0.87	37	Sabi	(Matika *et al.* 2003)
Embryo survival													
	0.03 ± 0.05	-	0.09 ± 0.05	-	837	383	53	-	9	0.84	27	Romney	(Davis *et al.* 1998)
	0.00 ± 0.02	-	0.04 ± 0.03	-	2,358	1,202	110	-	9	0.86	26	Coopworth	(Davis *et al.* 1998)
	0.01 ± 0.07	-	0.15 ± 0.08	-	555	386	51	-	9	0.83	28	Perendale	(Davis *et al.* 1998)
	0.02 ± 0.02	-	0.07 ± 0.02	-	3,750	1,971	214	-	9	0.84	27	Pooled breeds	(Davis *et al.* 1998)
Ovulation rate													
	0.23	-	0.00	-	1864	685	182	-	11	1.75	33	Rambouillet	(Matos *et al.* 1997)
	0.08 ± 0.06	-	0.11 ± 0.05	-	837	383	53	-	9	2.15	27	Romney	(Davis *et al.* 1998)
	0.16 ± 0.03	-	0.14 ± 0.03	-	2,358	1,202	110	-	9	2.43	24	Coopworth	(Davis *et al.* 1998)
	0.07 ± 0.08	-	0.19 ± 0.07	-	555	386	51	-	9	2.15	23	Perendale	(Davis *et al.* 1998)
	0.14 ± 0.03	-	0.12 ± 0.02	-	3,750	1,971	214	-	9	2.32	25	Across breed	(Davis *et al.* 1998)
Activity [3]	0.20 ± 0.04	-	0.10 ± 0.07	-	1,887	933	176	-	3	0.28	-	Merino	(Hanocq *et al.* 1999)
Activity [3]	0.37 [1]	-	-	-	9,33	933	176	-	3	0.28	-	Merino	(Hanocq *et al.* 1999)

Table 4. Estimates of heritability for reproduction traits *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Record	Ewes	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Activity [3]	0.22 ± 0.08	-	0.01 ± 0.09	-	707	435	150	-	-	0.29		Chios	(Avdi *et al.* 2003)
Activity [3]	0.29 [1]	-	-	-	707	435	150	-	-	0.29		Chios	(Avdi *et al.* 2003)
Scrotal circumference													
180d	0.25 ± 0.16	-	-	-	473		108	-	5	-	-	Rambouillet	(Matos *et al.* 1992)
18m	0.15 ± 0.11	-	-	-	571		27	-	3	36.2	6	Corriedale	(Brash *et al.* 1994b)
150d	0.09 ± 0.13	-	-	-	287	287	48	-	5	27.3	10	Composite	(Fossceco and Notter 1995)
10m	0.35	-	-	-	2,200		162	-	4	26.3	12	Merino	(Ponzoni *et al.* 1995)
16m	0.41	-	-	-	2,200		162	-	4	31.8	9	Merino	(Ponzoni *et al.* 1995)
120d	0.01	-	-	-	284		47	173	6	26.1	9	Composite	(Al-Shorepy and Notter 1996)
16m	0.40 ± 0.05	-	-	-	1,380	1,380	-	-	13	32.1	7	Merino	(Duguma *et al.* 2002a)
16m W adj	0.29 ± 0.05	-	-	-	1,380	1,380	-	-	13	32.1	7	Merino	(Duguma *et al.* 2002a)
16m age adj	0.37 ± 0.06	-	-	-	2,164	-	158	-	4	31.8	9	Merino	(Ingham 2003)
Behaviour													
Maternal sc	0.13 ± 0.03	-	0.19 ± 0.03	-	2,331	847	32	628	2	4.15	26	Scottish Blackface	(Lambe *et al.* 2001)
Time parturitn	0.03 ± 0.04	0.15 ± 0.04	-	-	1,167	-	-	-	10	1.64	28	SA Mutton Merino	(Cloete *et al.* 2002)
Time parturitn	0.04 ± 0.05	0.14 ± 0.04	-	-	1,036	-	-	-	10	1.50	31	Dormer	(Cloete *et al.* 2002)
Lamb b stand	0.10 ± 0.05	-	-	-	1,167	-	-	-	10	1.32	23	SA Mutton Merino	(Cloete *et al.* 2002)
Lamb b stand	0.22 ± 0.06	-	-	-	1,036	-	-	-	10	1.36	28	Dormer	(Cloete *et al.* 2002)
Stand -suck	0.08 ± 0.05	-	0.17 ± 0.04	-	1,167	-	-	-	10	1.38	30	SA Mutton Merino	(Cloete *et al.* 2002)
Stand -suck	0.12 ± 0.05	-	-	-	1,036	-	-	-	10	1.51	29	Dormer	(Cloete *et al.* 2002)
Day of lamb	0.08 ± 0.02	-	0.02 ± 0.01 [4]	-	2,955	1,107	216	-	15	18.5	51	Merino	(Cloete *et al.* 2004)
Milk score	0.16	-	0.07	-	4,769	1,731	267	-	12	-	-	Columbia	(Snowder *et al.* 2001)
Milk score	0.26	-	0.02	-	3,249	1,129	119	-	12	-	-	Polypay	(Snowder *et al.* 2001)
Milk score	0.16	-	0.07	-	5,336	1,704	434	-	12	-	-	Rambouillet	(Snowder *et al.* 2001)
Milk score	0.17	-	0.06	-	4,929	1,638	435	-	12	-	-	Targhee	(Snowder *et al.* 2001)
Ram serving capacity													
Score	0.22 ± 0.04	-	0.50 ± 0.04	-	4,685	-	-	-	11	3.5	44	Four breeds	(Snowder *et al.* 2002)
Longevity													
Yrs in flock	0.06 ± 0.03	-	-	-	2,488	2,488	81	-	21	4.4	25	Dorset	(Brash *et al.* 1994d)

[1] Threshold model, [2] Bayesian estimate, mean (sd), [3] Out of season activity, [4] Sire

Table 5. Estimates of heritability for reproduction traits at various ages and for different models

Estimates of heritability ($h^2 \pm$ s.e.), maternal heritability ($m^2 \pm$s.e.), permanent environmental effect ($c^2 \pm$ s.e.), genetic correlation between direct and maternal effects ($r_{am} \pm$ s.e.), numbers of records, ewes, sires, dams and years of records, mean, coefficient of variation (CV %), breed and reference

Trait	h^2	m^2	c^2	r_{am}	Records	Ewes	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Number of lambs weaned per ewe joined [NLW/EJ]													
Parity 1	0.08 ± 0.05	-	-	-	1,619	1,619	130	-	9	-	-	Hyfer	(Fogarty *et al.* 1994)
28m	0.14 ± 0.05	-	-	-	2,073	2,073	158	-	4	0.59	91	Merino	(Ingham 2003)
40m	0.02 ± 0.04	-	-	-	2,006	2,006	158	-	4	0.87	70	Merino	(Ingham 2003)
52m	0.04 ± 0.04	-	-	-	1,918	1,918	158	-	4	1.02	64	Merino	(Ingham 2003)
64m	0.08 ± 0.05	-	-	-	1,820	1,820	158	-	4	1.07	62	Merino	(Ingham 2003)
Number of lambs born per ewe joined [NLB/EJ]													
Parity 1	0.17 ± 0.06	-	-	-	1,619	1,619	130	-	9	-	-	Hyfer	(Fogarty *et al.* 1994)
Weight of lamb weaned per ewe joined [WW/EJ] (kg)													
Parity 1	0.12 ± 0.06	-	-	-	1,619	1,619	130	-	9	-	-	Hyfer	(Fogarty *et al.* 1994)
1 year	0.06 ± 0.04	-	-	-	1,025	1,025	-	-	23	31.6	58	Afrino	(Snyman *et al.* 1997)
Sum 2 yrs	0.05 ± 0.06	-	-	-	794	794	-	-	23	73.8	34	Afrino	(Snyman *et al.* 1997)
1 year	0.09 ± 0.03	-	-	-	2,510	2,510	-	-	22	8.8	114	Merino	(Snyman *et al.* 1997)
Sum 2 yrs	0.17 ± 0.04	-	-	-	2,237	2,237	-	-	22	22.6	73	Merino	(Snyman *et al.* 1997)
Sum 3 yrs	0.22 ± 0.04	-	-	-	1,991	1,991	-	-	22	37.8	56	Merino	(Snyman *et al.* 1997)
1 year	0.08 ± 0.03	-	-	-	2,570	2,570	-	-	28	48.5	58	Merino	(Snyman *et al.* 1997)
Sum 2 yrs	0.05 ± 0.03	-	-	-	2,073	2,073	-	-	28	55.3	47	Merino	(Snyman *et al.* 1997)
Sum 3 yrs	0.13 ± 0.05	-	-	-	1,616	1,616	-	-	28	90.2	37	Merino	(Snyman *et al.* 1997)
Number of lambs weaned per ewe lambing [NLW/EL]													
Parity 1	0.15	-	-	-	10,615	10,615	1,172	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 1	0.23 [1]	-	-	-	10,615	10,615	1,172	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 2	0.10	-	-	-	6,830	6,830	819	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 2	0.16 [1]	-	-	-	6,830	6,830	819	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 3	0.11	-	-	-	5,265	5,265	663	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 3	0.17 [1]	-	-	-	5,265	5,265	663	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 4	0.05	-	-	-	3,215	3,215	435	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 4	0.10 [1]	-	-	-	3,215	3,215	435	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 5	0.13	-	-	-	1,792	1,792	259	-	8	-	-	Pelt	(Gates and Urioste 1995)

Table 5. Estimates of heritability for reproduction traits at various ages and for different models *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Ewes	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Parity 5	0.19 [1]	-	-	-	1,792	1,792	259	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 1	0.14	-	-	-	4,607	4,607	395	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 1	0.22 [1]	-	-	-	4,607	4,607	395	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 2	0.11	-	-	-	2,497	2,497	245	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 2	0.16 [1]	-	-	-	2,497	2,497	245	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 3	0.09	-	-	-	1,526	1,526	168	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 3	0.14 [1]	-	-	-	1,526	1,526	168	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 4	0.32	-	-	-	791	791	102	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 4	0.41 [1]	-	-	-	791	791	102	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 1	0.27	-	-	-	3,090	3,090	296	-	8	-	-	Landrace	(Gates and Urioste 1995)
Parity 1	0.37 [1]	-	-	-	3,090	3,090	296	-	8	-	-	Landrace	(Gates and Urioste 1995)
Parity 2	0.28	-	-	-	1,481	1,481	168	-	8	-	-	Landrace	(Gates and Urioste 1995)
Parity 2	0.36 [1]	-	-	-	1,481	1,481	168	-	8	-	-	Landrace	(Gates and Urioste 1995)
Parity 3	0.07	-	-	-	786	786	102	-	8	-	-	Landrace	(Gates and Urioste 1995)
Parity 3	0.10 [1]	-	-	-	786	786	102	-	8	-	-	Landrace	(Gates and Urioste 1995)
1 yr	0.10	-	-	-	666	666	31	-	22	0.80	59	Columbia	(Okut *et al.* 1999)
1 yr	0.05	-	-	-	1,998	1,998	67	-	22	0.98	55	Polypay	(Okut *et al.* 1999)
1 yr	0.01	-	-	-	960	960	42	-	22	0.79	53	Rambouillet	(Okut *et al.* 1999)
1 yr	0.00	-	-	-	757	757	34	-	22	0.76	62	Targhee	(Okut *et al.* 1999)
2&3 yrs	0.06	-	0.00	-	2,512	1,667	213	-	22	1.28	47	Columbia	(Okut *et al.* 1999)
2&3 yrs	0.00	-	0.09	-	3,002	2,172	238	-	22	1.53	39	Polypay	(Okut *et al.* 1999)
2&3 yrs	0.10	-	0.01	-	2,365	1,663	361	-	22	1.29	46	Rambouillet	(Okut *et al.* 1999)
2&3 yrs	0.03	-	0.10	-	3,091	2,033	419	-	22	1.22	48	Targhee	(Okut *et al.* 1999)
>3 yrs	0.09	-	0.00	-	1,962	928	194	-	22	1.44	43	Columbia	(Okut *et al.* 1999)
>3 yrs	0.09	-	0.00	-	2,095	1,102	214	-	22	1.58	40	Polypay	(Okut *et al.* 1999)
>3 yrs	0.08	-	0.04	-	2,370	1,203	310	-	22	1.45	43	Rambouillet	(Okut *et al.* 1999)
>3 yrs	0.09	-	0.03	-	2,604	1,247	364	-	22	1.37	47	Targhee	(Okut *et al.* 1999)
Weight of lamb weaned per ewe lambing [WW/EL]													
1 yr	0.19	-	-	-	508	508	31	-	22	38.8	19	Columbia	(Okut *et al.* 1999)
1 yr	0.06	-	-	-	1,674	1,674	67	-	22	39.8	23	Polypay	(Okut *et al.* 1999)
1 yr	0.17	-	-	-	750	1,570	42	-	22	35.9	14	Rambouillet	(Okut *et al.* 1999)
1 yr	0.25	-	-	-	559	559	34	-	22	34.2	16	Targhee	(Okut *et al.* 1999)
2&3 yrs	0.00	-	0.00	-	2,281	1,546	213	-	22	52.9	22	Columbia	(Okut *et al.* 1999)

Table 5. Estimates of heritability for reproduction traits at various ages and for different models *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Ewes	Sires	Dams	Yrs	Mean	CV	Breed	Reference
2&3 yrs	0.06	-	0.07	-	2,830	2,051	238	-	22	56.4	23	Polypay	(Okut *et al.* 1999)
2&3 yrs	0.12	-	0.02	-	2,156	1,570	361	-	22	48.1	22	Rambouillet	(Okut *et al.* 1999)
2&3 yrs	0.15	-	0.03	-	2,785	1,882	419	-	22	47.1	23	Targhee	(Okut *et al.* 1999)
>3 yrs	0.02	-	0.07	-	1,820	878	194	-	22	57.3	21	Columbia	(Okut *et al.* 1999)
>3 yrs	0.05	-	0.04	-	1,965	1,032	214	-	22	59.0	22	Polypay	(Okut *et al.* 1999)
>3 yrs	0.13	-	0.06	-	2,195	1,135	310	-	22	52.5	24	Rambouillet	(Okut *et al.* 1999)
>3 yrs	0.10	-	0.05	-	2,364	1,171	364	-	22	51.6	22	Targhee	(Okut *et al.* 1999)
Parity 1	0.02± 0.07	-	-	-	818	818	371	689	19	-	-	Merino	(Schoeman *et al.* 2002)
Litter size (number of lambs born per ewe lambing) [NLB/EL]													
Parity 1	0.20 ± 0.08	-	-	-	1,619	1,619	130	-	9	-	-	Hyfer	(Fogarty *et al.* 1994)
Parity 1	0.21	-	-	-	10,615	10,615	1,172	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 1	0.35 [1]	-	-	-	10,615	10,615	1,172	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 2	0.20	-	-	-	6,830	6,830	819	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 2	0.31 [1]	-	-	-	6,830	6,830	819	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 3	0.13	-	-	-	5,265	5,265	663	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 3	0.22 [1]	-	-	-	5,265	5,265	663	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 4	0.07	-	-	-	3,215	3,215	435	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 4	0.12 [1]	-	-	-	3,215	3,215	435	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 5	0.13	-	-	-	1,792	1,792	259	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 5	0.18 [1]	-	-	-	1,792	1,792	259	-	8	-	-	Pelt	(Gates and Urioste 1995)
Parity 1	0.40	-	-	-	4,607	4,607	395	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 1	0.62 [1]	-	-	-	4,607	4,607	395	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 2	0.28	-	-	-	2,497	2,497	245	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 2	0.40 [1]	-	-	-	2,497	2,497	245	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 3	0.26	-	-	-	1,526	1,526	168	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 3	0.32 [1]	-	-	-	1,526	1,526	168	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 4	0.28	-	-	-	791	791	102	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 4	0.37 [1]	-	-	-	791	791	102	-	8	-	-	Svea	(Gates and Urioste 1995)
Parity 1	0.34	-	-	-	3,090	3,090	296	-	8	-	-	Landrace	(Gates and Urioste 1995)
Parity 1	0.46 [1]	-	-	-	3,090	3,090	296	-	8	-	-	Landrace	(Gates and Urioste 1995)
Parity 2	0.33	-	-	-	1,481	1,481	168	-	8	-	-	Landrace	(Gates and Urioste 1995)
Parity 2	0.38 [1]	-	-	-	1,481	1,481	168	-	8	-	-	Landrace	(Gates and Urioste 1995)
Parity 3	0.14	-	-	-	786	786	102	-	8	-	-	Landrace	(Gates and Urioste 1995)

Table 5. Estimates of heritability for reproduction traits at various ages and for different models *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Ewes	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Parity 3	0.20 [1]	-	-	-	786	786	102	-	8	-	-	Landrace	(Gates and Urioste 1995)
Fall lambing	0.10	-	0.02	-	447	230	52	-	6	1.75	34	Composite	(Al-Shorepy and Notter 1996)
Linear AM	0.08	-	0.03	-	1,754	1,008	252	-	12	2.49	24	Finnsheep	(Matos *et al.* 1997)
Threshold	0.13	-	-	-	1,754	1,008	252	-	12	2.49	-	Finnsheep	(Matos *et al.* 1997)
Linear AM	0.16	-	0.05	-	1,747	660	182	-	11	1.47	35	Rambouillet	(Matos *et al.* 1997)
Threshold	0.25	-	-	-	1,747	660	182	-	11	1.47	-	Rambouillet	(Matos *et al.* 1997)
Parity 1	0.14 ± 0.09	-	-	-	383	383	53	-	9	1.58	33	Romney	(Davis *et al.* 1998)
Parity 1	0.09 ± 0.04	-	-	-	1,202	1,202	110	-	9	1.84	31	Coopworth	(Davis *et al.* 1998)
Parity 1	0.00 ± 0.06	-	-	-	386	386	51	-	9	1.55	34	Perendale	(Davis *et al.* 1998)
Parity 1	0.09 ± 0.03	-	-	-	1,971	1,971	214	-	9	1.73	32	Pooled breeds	(Davis *et al.* 1998)
Parity 1	0.09 ± 0.01	-	-	-	13,861	-	-	-	9	1.68	33	Swifter	(de Vries *et al.* 1998)
Parity 2	0.12 ± 0.01	-	-	-	11,135	-	-	-	9	2.17	30	Swifter	(de Vries *et al.* 1998)
Parity 3	0.09 ± 0.01	-	-	-	6,384	-	-	-	9	2.37	29	Swifter	(de Vries *et al.* 1998)
Parity 1	0.05 ± 0.02	-	-	-	3,433	-	-	-	5	1.64	34	Zwartbles	(de Vries *et al.* 1998)
Parity 2	0.07 ± 0.03	-	-	-	2,951	-	-	-	5	2.12	30	Zwartbles	(de Vries *et al.* 1998)
Parity 3	0.10 ± 0.04	-	-	-	1,691	-	-	-	5	2.31	30	Zwartbles	(de Vries *et al.* 1998)
Parity 1	0.02 ± 0.00	-	-	-	31,375	31,375	1,380	24,495	18	1.18	33	Merino	(Nagy *et al.* 1999)
Parity 2	0.02 ± 0.01	-	-	-	18,950	18,950	1,170	16,138	18	1.26	36	Merino	(Nagy *et al.* 1999)
Parity 3	0.01 ± 0.01	-	-	-	11,027	11,027	1,026	9,686	18	1.32	35	Merino	(Nagy *et al.* 1999)
Parity 4	0.07 ± 0.02	-	-	-	8,033	8,033	1,038	7,245	18	1.35	36	Merino	(Nagy *et al.* 1999)
Parity 5	0.07 ± 0.02	-	-	-	5,669	5,669	752	5,252	18	1.37	36	Merino	(Nagy *et al.* 1999)
1 yr	0.12	-	-	-	666	666	31	-	22	1.16	32	Columbia	(Okut *et al.* 1999)
1 yr	0.12	-	-	-	1,998	1,998	67	-	22	1.43	39	Polypay	(Okut *et al.* 1999)
1 yr	0.14	-	-	-	960	960	42	-	22	1.15	30	Rambouillet	(Okut *et al.* 1999)
1 yr	0.01	-	-	-	757	757	34	-	22	1.12	28	Targhee	(Okut *et al.* 1999)
2&3 yrs	0.08	-	0.00	-	2,512	1,667	213	-	22	1.58	34	Columbia	(Okut *et al.* 1999)
2&3 yrs	0.12	-	0.00	-	3,002	2,172	238	-	22	1.92	32	Polypay	(Okut *et al.* 1999)
2&3 yrs	0.14	-	0.01	-	2,365	1,663	361	-	22	1.60	32	Rambouillet	(Okut *et al.* 1999)
2&3 yrs	0.17	-	0.01	-	3,091	2,033	419	-	22	1.53	35	Targhee	(Okut *et al.* 1999)
>3 yrs	0.06	-	0.05	-	1,962	928	194	-	22	1.78	34	Columbia	(Okut *et al.* 1999)
>3 yrs	0.17	-	0.00	-	2,095	1,102	214	-	22	2.11	32	Polypay	(Okut *et al.* 1999)
>3 yrs	0.08	-	0.02	-	2,370	1,203	310	-	22	1.85	32	Rambouillet	(Okut *et al.* 1999)
>3 yrs	0.07	-	0.05	-	2,604	1,247	364	-	22	1.76	32	Targhee	(Okut *et al.* 1999)

Table 5. Estimates of heritability for reproduction traits at various ages and for different models *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Ewes	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Parity 1	0.34 (0.14) [1]	-	-	-	5,480	-	166	-	23	1.07	24	Baluchi	(Yazdi *et al.* 1999)
Parity 2	0.36 (0.12) [1]	-	-	-	4,150	-	163	-	23	1.15	30	Baluchi	(Yazdi *et al.* 1999)
Parity 3	0.43 (0.15) [1]	-	-	-	2,991	-	147	-	23	1.21	34	Baluchi	(Yazdi *et al.* 1999)
2&3 yrs	0.02 ± 0.03	-	0.01 ± 0.05	-	1,106	653	48	351	22	1.41	35	Rambouillet	(Lee *et al.* 2000)
>3 yrs	0.04 ± 0.03	-	0.01 ± 0.04	-	1,118	466	53	277	22	1.64	35	Rambouillet	(Lee *et al.* 2000)
Parity 1	0.16 ± 0.01	-	-	-	26,274	26,274	-	-	3	1.41	36	White Alpine	(Hagger 2002)
Parity 1	0.16 ± 0.01	-	-	-	25,155	25,155	-	-	8	1.42	36	White Alpine	(Hagger 2002)
Parity 1	0.12 ± 0.01	-	-	-	18,913	18,913	-	-	11	1.41	35	Brown headed	(Hagger 2002)
Parity 1	0.22 ± 0.01	-	-	-	14,953	14,953	-	-	11	1.57	37	Black-Brown	(Hagger 2002)
Parity 1	0.12	-	-	-	21,726	21,726	-	-	11	1.36	34	Valais-B Nose	(Hagger 2002)
Parity 2	0.18 ± 0.01	-	-	-	19,358	19,358	-	-	3	1.54	36	White Alpine	(Hagger 2002)
Parity 2	0.17 ± 0.01	-	-	-	17,062	17,062	-	-	8	1.56	35	White Alpine	(Hagger 2002)
Parity 2	0.14 ± 0.01	-	-	-	13,769	13,769	-	-	11	1.66	33	Brown headed	(Hagger 2002)
Parity 2	0.21 ± 0.01	-	-	-	11,131	11,131	-	-	11	1.75	37	Black-Brown	(Hagger 2002)
Parity 2	0.13	-	-	-	16,748	16,748	-	-	11	1.52	34	Valais-B Nose	(Hagger 2002)
Parity 3	0.14 ± 0.01	-	-	-	14,755	14,755	-	-	3	1.66	34	White Alpine	(Hagger 2002)
Parity 3	0.16 ± 0.01	-	-	-	10,458	10,458	-	-	8	1.66	34	White Alpine	(Hagger 2002)
Parity 3	0.12 ± 0.01	-	-	-	9,308	9,308	-	-	11	1.79	32	Brown headed	(Hagger 2002)
Parity 3	0.15 ± 0.01	-	-	-	7,987	7,987	-	-	11	1.86	37	Black-Brown	(Hagger 2002)
Parity 3	0.11	-	-	-	11,833	11,833	-	-	11	1.56	34	Valais-B Nose	(Hagger 2002)
28m	0.16 ± 0.05	-	-	-	1,415	1,415	158	-	4	1.08	50	Merino	(Ingham 2003)
40m	0.08 ± 0.04	-	-	-	1,671	1,671	158	-	4	1.27	47	Merino	(Ingham 2003)
52m	0.14 ± 0.05	-	-	-	1,667	1,667	158	-	4	1.43	45	Merino	(Ingham 2003)
64m	0.21 ± 0.06	-	-	-	1,600	1,600	158	-	4	1.52	42	Merino	(Ingham 2003)
Number of lambs born alive per ewe lambing [NLBA/EL]													
1 yr	0.12	-	-	-	666	666	31	-	22	1.16	32	Columbia	(Okut *et al.* 1999)
1 yr	0.13	-	-	-	1,998	1,998	67	-	22	1.43	36	Polypay	(Okut *et al.* 1999)
1 yr	0.14	-	-	-	960	960	42	-	22	1.15	30	Rambouillet	(Okut *et al.* 1999)
1 yr	0.01	-	-	-	757	757	34	-	22	1.12	30	Targhee	(Okut *et al.* 1999)
2&3 yrs	0.08	-	0.00	-	2,512	1,667	213	-	22	1.57	34	Columbia	(Okut *et al.* 1999)
2&3 yrs	0.12	-	0.00	-	3,002	2,172	238	-	22	1.92	32	Polypay	(Okut *et al.* 1999)
2&3 yrs	0.14	-	0.01	-	2,365	1,663	361	-	22	1.60	32	Rambouillet	(Okut *et al.* 1999)

Table 5. Estimates of heritability for reproduction traits at various ages and for different models *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Ewes	Sires	Dams	Yrs	Mean	CV	Breed	Reference
2&3 yrs	0.17	-	0.01	-	3,091	2,033	419	-	22	1.53	35	Targhee	(Okut *et al.* 1999)
>3 yrs	0.06	-	0.05	-	1,962	928	194	-	22	1.78	34	Columbia	(Okut *et al.* 1999)
>3 yrs	0.17	-	0.02	-	2,095	1,102	214	-	22	2.11	32	Polypay	(Okut *et al.* 1999)
>3 yrs	0.08	-	0.02	-	2,370	1,203	310	-	22	1.85	32	Rambouillet	(Okut *et al.* 1999)
>3 yrs	0.07	-	0.05	-	2,604	1,247	364	-	22	1.76	32	Targhee	(Okut *et al.* 1999)
Fertility (number of ewes lambing per ewe joined) [EL/EJ]													
Parity 1	0.10 ± 0.06	-	-	-	1,619	1,619	130	-	9	-	-	Hyfer	(Fogarty *et al.* 1994)
Linear AM	0.04	-	0.09	-	2,099	1,097	254	-	12	0.84	43	Finnsheep	(Matos *et al.* 1997)
Threshold	0.17	-	-	-	2,099	1,097	254	-	12	0.84	-	Finnsheep	(Matos *et al.* 1997)
Linear AM	0.03	-	0.07	-	2,032	714	186	-	11	0.84	43	Rambouillet	(Matos *et al.* 1997)
Threshold	0.10	-	-	-	2,032	714	186	-	11	0.84	-	Rambouillet	(Matos *et al.* 1997)
28m	0.13 ± 0.05	-	-	-	2,073	2,073	158	-	4	0.68	67	Merino	(Ingham 2003)
40m	0.07 ± 0.04	-	-	-	2,006	2,006	158	-	4	0.83	44	Merino	(Ingham 2003)
52m	0.06 ± 0.04	-	-	-	1,918	1,918	158	-	4	0.87	38	Merino	(Ingham 2003)
64m	0.10 ± 0.05	-	-	-	1,820	1,820	158	-	4	0.88	31	Merino	(Ingham 2003)
Ewe rearing ability [NLW/NLB]													
Parity 1	0.01 ± 0.06	-	-	-	1,619	1,619	130	-	9	-	-	Hyfer	(Fogarty *et al.* 1994)
28m	0.11 ± 0.04	-	-	-	1,415	1,415	158	-	4	0.55	88	Merino	(Ingham 2003)
40m	0.01 ± 0.03	-	-	-	1,671	1,671	158	-	4	0.70	62	Merino	(Ingham 2003)
52m	0.08 ± 0.04	-	-	-	1,667	1,667	158	-	4	0.73	55	Merino	(Ingham 2003)
64m	0.02 ± 0.04	-	-	-	1,600	1,600	158	-	4	0.72	53	Merino	(Ingham 2003)
Lamb survival – comparison of models													
Linear	0.03	0.03	-	0.44	2,554	-	349	-	10	0.82	47	Rambouillet	(Matos *et al.* 2000)
Threshold	0.06	0.04	-	0.62	2,554	-	349	-	10	0.82	47	Rambouillet	(Matos *et al.* 2000)
Linear	0.09	0.19	-	0.14	3,306	-	265	-	13	0.75	57	Finnsheep	(Matos *et al.* 2000)
Threshold	0.17	0.26	-	0.14	3,306	-	265	-	13	0.75	57	Finnsheep	(Matos *et al.* 2000)
0-44d Weibull SM	0.21 ± 0.07	-	-	-	8,642	-	-	-	13	0.85	-	Composite	(Southey *et al.* 2001)
0-44d, Cox SM	0.16 ± 0.06	-	-	-	8,642	-	-	-	13	0.85	-	Composite	(Southey *et al.* 2001)
0-44d, Log SM	0.10 ± 0.04	-	-	-	8,642	-	-	-	13	0.85	-	Composite	(Southey *et al.* 2001)
0-44d, Log AM	0.05 ± 0.02	-	-	-	8,642	-	-	-	13	0.85	-	Composite	(Southey *et al.* 2001)
0-44d, Log AM+M	0.03 ± 0.02	0.07± 0.03	-	-0.68 ± 0.31	8,642	-	-	-	13	0.85	-	Composite	(Southey *et al.* 2001)

Table 5. Estimates of heritability for reproduction traits at various ages and for different models *- Continued*

Trait	h^2	m^2	c^2	r_{am}	Records	Ewes	Sires	Dams	Yrs	Mean	CV	Breed	Reference
44-365d, WeibllSM	0.19 ± 0.12	-	-	-	7,331	-	-	-	13	0.92	-	Composite	(Southey *et al.* 2001)
44-365d, Cox SM	0.18 ± 0.12	-	-	-	7,331	-	-	-	13	0.92	-	Composite	(Southey *et al.* 2001)
44-365d, Log SM	0.09 ± 0.06	-	-	-	7,331	-	-	-	13	0.92	-	Composite	(Southey *et al.* 2001)
44-365d, Log AM	0.05 ± 0.03	-	-	-	7,331	-	-	-	13	0.92	-	Composite	(Southey *et al.* 2001)
44-365d,LgAM+M	0.07 ± 0.04	0.01 ± 0.04	-	-0.86 ± 1.8	7,331	-	-	-	13	0.92	-	Composite	(Southey *et al.* 2001)
Embryo survival													
Parity 1	0.16 ± 0.15	-	-	-	383	383	53	-	9	-	-	Romney	(Davis *et al.* 1998)
Parity 1	0.03 ± 0.05	-	-	-	1,202	1,202	110	-	9	-	-	Coopworth	(Davis *et al.* 1998)
Parity 1	0.00 ± 0.12	-	-	-	386	386	51	-	9	-	-	Perendale	(Davis *et al.* 1998)
Parity 1	0.02 ± 0.04	-	-	-	1,971	1,971	214	-	9	-	-	Pooled breeds	(Davis *et al.* 1998)
Ovulation rate													
Linear AM	0.23	-	0.00	-	1,864	685	182	-	11	1.75	33	Rambouillet	(Matos *et al.* 1997)
Threshold	0.28	-	-	-	1,864	685	182	-	11	1.75	-	Rambouillet	(Matos *et al.* 1997)
Parity 1	0.05 ± 0.10	-	-	-	383	383	53	-	9	1.86	28	Romney	(Davis *et al.* 1998)
Parity 1	0.14 ± 0.05	-	-	-	1,202	1,202	110	-	9	2.13	23	Coopworth	(Davis *et al.* 1998)
Parity 1	0.03 ± 0.09	-	-	-	386	386	51	-	9	1.85	26	Perendale	(Davis *et al.* 1998)
Parity 1	0.12 ± 0.04	-	-	-	1,971	1,971	214	-	9	2.02	25	Pooled breeds	(Davis *et al.* 1998)
Scrotal circumference													
90d wt adj	0.39 ± 0.18	-	-	-	417	-	97	-	5	-	-	Rambouillet	(Matos *et al.* 1992)
90d	0.25 ± 0.17	-	-	-	417	-	97	-	5	-	-	Rambouillet	(Matos *et al.* 1992)
120d wt adj	0.26 ± 0.15	-	-	-	502	-	106	-	5	-	-	Rambouillet	(Matos *et al.* 1992)
120d	0.19 ± 0.15	-	-	-	502	-	106	-	5	-	-	Rambouillet	(Matos *et al.* 1992)
150d wt adj	0.25 ± 0.15	-	-	-	534	-	109	-	5	-	-	Rambouillet	(Matos *et al.* 1992)
150d	0.23 ± 0.14	-	-	-	534	-	109	-	5	-	-	Rambouillet	(Matos *et al.* 1992)
180d wt adj	0.41 ± 0.17	-	-	-	473	-	108	-	5	-	-	Rambouillet	(Matos *et al.* 1992)
180d	0.25 ± 0.16	-	-	-	473	-	108	-	5	-	-	Rambouillet	(Matos *et al.* 1992)
10m	0.35	-	-	-	2,200	-	162	-	4	26.3	12	Merino	(Ponzoni *et al.* 1995)
65d	0.15	-	-	-	308	-	47	175	6	14.5	10	Composite	(Al-Shorepy and Notter 1996)
90d	0.25	-	-	-	318	-	48	174	6	21.4	12	Composite	(Al-Shorepy and Notter 1996)
5m age adj	0.59 ± 0.07	-	-	-	2,336	-	158	-	4	17.5	18	Merino	(Ingham 2003)
5m wt adj	0.48 ± 0.06	-	-	-	2,336	-	158	-	4	17.5	14	Merino	(Ingham 2003)

5m age,wt adj	0.45 ± 0.06	-	-	-	2,336	-	158	-	4	17.5	13	Merino	(Ingham 2003)
10m age adj	0.40 ± 0.07	-	-	-	2,202	-	158	-	4	26.4	12	Merino	(Ingham 2003)
10m wt adj	0.39 ± 0.06	-	-	-	2,202	-	158	-	4	26.4	10	Merino	(Ingham 2003)
10m age,wt adj	0.40 ± 0.06	-	-	-	2,202	-	158	-	4	26.4	10	Merino	(Ingham 2003)
16m age adj	0.37 ± 0.06	-	-	-	2,164	-	158	-	4	31.8	9	Merino	(Ingham 2003)
16m wt adj	0.37 ± 0.06	-	-	-	2,164	-	158	-	4	31.8	7	Merino	(Ingham 2003)
16m age, wt adj	0.38 ± 0.06	-	-	-	2,164	-	158	-	4	31.8	7	Merino	(Ingham 2003)

[1] Bayesian estimate, mean (sd)

SM sire model, AM animal model, M maternal effect

Table 6. Estimates of heritability for worm resistance, fleece rot and feed intake

Estimates of heritability (h^2 ± s.e.), maternal heritability (m^2 ±s.e.), permanent environmental effect (c^2 ± s.e.), numbers of records, sires, dams and years of records, mean, coefficient of variation (CV %), breed and reference

Trait	h^2	m^2	c^2	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Worm resistance (FEC [1])											
Log_e(FEC+1) pw	0.27 ± 0.07	-	-	2,611	60	-	3	6.74	14	Romney	(Bisset *et al*. 1992)
Log_e(FEC+100) pw	0.21 ± 0.05	-	-	3,395	123	-	1	6.91	10	Romney	(Bisset *et al*. 1994)
Log_e(FEC+100) pw	0.20 ± 0.03	-	-	1,547	64	400	3	7.49	11	Romney	(Douch *et al*. 1995)
$\sqrt[3]{}$FEC w	0.18 ± 0.05	-	-	1,738	54	-	5	-	-	Merino	(Greeff *et al.* 1995)
$\sqrt[3]{}$FEC 12m	0.43 ± 0.06	-	-	2,414	79	-	5	-	-	Merino	(Greeff *et al.* 1995)
Log_e(FEC+1) w	0.14 ± 0.12	-	0.06 ± 0.08	576	23	-	3	3.90	60	Scottish Blackface	(Bishop *et al.* 1996)
Log_e(FEC+1) pw(4w)	0.15 ± 0.07	-	0.15 ± 0.09	576	23	-	3	3.53	69	Scottish Blackface	(Bishop *et al.* 1996)
Log_e(FEC+1) pw(8w)	0.22 ± 0.13	-	0.16 ± 0.08	576	23	-	3	3.70	60	Scottish Blackface	(Bishop *et al.* 1996)
$\sqrt[3]{}$FEC 6m	0.28	-	-	3,405	209	1,135	13	22.6	27	Merino	(Woolaston and Piper 1996)
$\sqrt[3]{}$FEC 4m	0.40 ± 0.06	-	-	2,237	113	-	2	5.24	49	Merino	(Greeff and Karlsson 1997)
$\sqrt[3]{}$FEC 15m	0.22 ± 0.07	-	-	2,237	113	-	2	2.75	85	Merino	(Greeff and Karlsson 1997)
Log_e(FEC+100) 4m	0.29 ± 0.06	-	-	1,557	44	-	12	6.88	13	Romney	(Morris *et al.* 1997)
Log_e(FEC+100) 5m	0.32 ± 0.05	-	-	1,523	44	-	12	7.36	11	Romney	(Morris *et al.* 1997)
Log_e(FEC+100) 7m	0.42 ± 0.06	-	-	1,324	44	-	12	7.07	13	Romney	(Morris *et al.* 1997)
$\sqrt[3]{}$FEC pooled data	0.25 ± 0.04	-	-	5,115	328	-	3	-	-	Merino	(Eady *et al*. 1998)
$\sqrt[3]{}$FEC 3m	0.19	0.02	-	3,739	89	1,694	9	5.81	47	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC 15m	0.15	0.00	-	3,733	89	1,692	9	6.66	40	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC 16m	0.15 ± 0.04	-	-	3,665	165	-	4	-	-	Merino	(Greeff and Karlsson 1999)
Log_e(FEC+100) w	0.29 ± 0.02	-	-	10,978	-	-	-	7.07	11	Romney	(Morris *et al.* 2000)
Log_e(FEC+100) 8m	0.36 ± 0.02	-	-	9,767	-	-	-	7.44	11	Romney	(Morris *et al.* 2000)
Log_e(FEC+100) 9m	0.35 ± 0.02	-	-	5,883	-	-	-	7.15	12	Romney	(Morris *et al.* 2000)
Log_e(FEC+6.25) lactation	0.23 ± 0.05	-	0.02 ± 0.04	1,445	73	285	4	-	-	Scottish Blackface	(Bishop and Stear 2001)
$\sqrt[3]{}$FEC pen	0.38 ± 0.04	-	-	1,314	-	-	16	9.11	36	Merino	(Woolaston and Windon 2001)
$\sqrt[3]{}$FEC pasture 1	0.21 ± 0.06	-	-	919	-	-	6	12.62	18	Merino	(Woolaston and Windon 2001)
$\sqrt[3]{}$FEC pasture 2	0.37 ± 0.07	-	-	919	-	-	6	10.74	26	Merino	(Woolaston and Windon 2001)
Log_e(FEC+1) 9m	0.24 ± 0.02	-	-	1,722	-	-	2	-	-	Merino	(Nieuwoudt *et al*. 2002)
Fleece rot											
Incidence 10m	0.17 ± 0.02	-	-	6,213	300	-	6	26.7	149	Merino	(Li *et al.* 1999)
Severity 10m	0.23 ± 0.02	-	-	6,213	300	-	6	0.58	185	Merino	(Li *et al.* 1999)

Table 6. Estimates of heritability for worm resistance, fleece rot and feed intake *- Continued*

Trait	h^2	m^2	c^2	Records	Sires	Dams	Yrs	Mean	CV	Breed	Reference
Feed intake											
DOMI [2] pooled	0.12 ± 0.07	-	-	2,278	126	-	2	0.82	23	Merino	(Lee *et al.* 1995)
DOMI/LW [2] pooled	0.10 ± 0.07	-	-	2,278	126	-	2	15.0	23	Merino	(Lee *et al.* 1995)
Wool growth pooled	0.41 ± 0.10	-	-	1,772	126	-	2	10.5	24	Merino	(Lee *et al.* 1995)
Effic. wool growth pooled	0.21 ± 0.09	-	-	1,772	126	-	2	14.0	29	Merino	(Lee *et al.* 1995)
DOMI 9m	0.08 ± 0.05	-	-	1,729	100	-	2	0.96	20	Merino	(Lee *et al.* 2002)
DOMI 15m	0.20 ± 0.08	-	-	1,292	150	-	3	1.03	18	Merino	(Lee *et al.* 2002)
DOMI/LW 9m	0.05 ± 0.05	-	-	1,729	100	-	2	28.8	21	Merino	(Lee *et al.* 2002)
DOMI/LW 15m	0.24 ± 0.09	-	-	1,292	150	-	3	22.3	17	Merino	(Lee *et al.* 2002)
Digestibility 9m	0.17 ± 0.06	-	-	1,729	100	-	2	0.79	3	Merino	(Lee *et al.* 2002)
Digestibility 15m	0.13 ± 0.08	-	-	1,292	150	-	3	0.78	4	Merino	(Lee *et al.* 2002)
Wool growth 9m	0.38 ± 0.08	-	-	1,729	100	-	2	11.4	24	Merino	(Lee *et al.* 2002)
Wool growth 15m	0.33 ± 0.10	-	-	1,292	150	-	3	9.4	22	Merino	(Lee *et al.* 2002)
Effic. wool growth 9m	0.24 ± 0.07	-	-	1,729	100	-	2	12.7	32	Merino	(Lee *et al.* 2002)
Effic. wool growth 15m	0.32 ± 0.10	-	-	1,292	150	-	3	9.6	28	Merino	(Lee *et al.* 2002)

[1] FEC = faecal egg count

[2] DOMI = digestible organic matter intake, LW = liveweight

Table 7. Estimates of correlations among wool traits

Estimates of genetic ($r_g \pm$ s.e.), phenotypic ($r_p \pm$ s.e.) and environmental ($r_e \pm$ s.e.) correlations for traits 1 and 2, numbers of records and sires, heritability (h_i^2), breed and reference

Trait 1	Trait 2	r_g	r_p	r_e	Records	Sires	h_1^2	h_2^2	Breed	Reference
Greasy fleece wt	**Clean fleece wt**									
12m	12m	0.82 ± 0.06	0.90 ± 0.00	-	2,798	63	0.32	0.29	Corriedale	(Brash *et al.* 1994b)
14m-female	14m-female	0.83 ± 0.10	0.89 ± 0.01	-	2,084	177	0.30	0.27	Merino	(Lewer *et al.* 1994)
14m-male	14m-male	0.86 ± 0.05	0.86 ± 0.01	-	1,527	180	0.42	0.44	Merino	(Lewer *et al.* 1994)
10m	10m	0.90	0.94	-	2,535	141	0.38	0.31	Merino	(Swan *et al.* 1995)
10m	10m	0.89 ± 0.04	0.88 ± 0.01	-	1,284	68	0.40	0.39	Merino	(Brash *et al.* 1997)
16m	16m	0.85 ± 0.06	0.84 ± 0.01	-	1,209	68	0.28	0.34	Merino	(Brash *et al.* 1997)
Adult	Adult	0.86 ± 0.03	0.90 ± 0.01	-	1,492	53	0.55	0.52	Corriedale	(Benavides *et al.* 1998)
12m	12m	0.94 ± 0.01	0.95 ± 0.00	-	2,987	114	0.33	0.34	Romney	(Wuliji *et al.* 1998)
15m	15m	0.65 ± 0.11	0.79 ± 0.01	-	900	54	0.35	0.34	Merino	(Rose and Pepper 1999)
15m	15m	0.71 ± 0.14	0.82 ± 0.02	-	900	54	0.23	0.20	Merino	(Rose and Pepper 1999)
10m	10m	0.89 ± 0.03	0.91 ± 0.00	-	2,170	155	0.55	0.48	Merino	(Hill 2001)
16m	16m	0.86 ± 0.03	0.88 ± 0.01	-	2,170	155	0.47	0.57	Merino	(Hill 2001)
10m	10m	0.84 ± 0.05	0.92 ± 0.01	-	1,785	70	0.24	0.28	Merino	(Wuliji *et al.* 2001)
16m	16m	0.84 ± 0.01	-	0.93 ± 0.01	9,389	442	0.44	0.42	Merino	(Cloete *et al.* 2002a)
Adult	Adult	0.89 ± 0.01	0.90 ± 0.01	-	27,445	159	0.22	0.25	Merino	(Sherlock *et al.* 2003)
Greasy fleece wt	**Fibre diameter**									
12m	12m	0.21 ± 0.15	0.37 ± 0.02	-	2,808	63	0.32	0.56	Corriedale	(Brash *et al.* 1994b)
12m	16m	0.23 ± 0.27	0.29 ± 0.04	-	1,009	54	0.32	0.62	Corriedale	(Brash *et al.* 1994b)
12m	12m	0.42 ± 0.25	0.31 ± 0.03	-	966	28	0.28	0.18	Coopworth	(Brash *et al.* 1994c)
14m-female	14m-female	0.25 ± 0.15	0.26 ± 0.02	-	2,084	177	0.30	0.59	Merino	(Lewer *et al.* 1994)
14m-male	14m-male	0.34 ± 0.15	0.32 ± 0.02	-	1,527	180	0.42	0.58	Merino	(Lewer *et al.* 1994)
10m	10m	0.21	0.28	-	2,535	141	0.38	0.58	Merino	(Swan *et al.* 1995)
10m	10m	0.36 ± 0.14	0.17 ± 0.03	-	1,284	68	0.40	0.58	Merino	(Brash *et al.* 1997)
16m	16m	0.50 ± 0.15	0.22 ± 0.03	-	1,211	68	0.28	0.55	Merino	(Brash *et al.* 1997)
12m	12m	0.51*	-	0.08	1,743	149	0.32	0.58	Targhee	(Notter and Hough 1997)
Adult	Adult	0.34 ± 0.10	0.46 ± 0.02	-	1,492	53	0.55	0.52	Corriedale	(Benavides *et al.* 1998)
12m	12m	0.38 ± 0.08	0.48 ± 0.02	-	2,987	114	0.33	0.55	Romney	(Wuliji *et al.* 1998)
1y	1y	0.07 ± 0.03	-	-	25,990	1,096	0.12	0.19	Merino	(Nagy *et al.* 1999)
15m	15m	0.40 ± 0.16	0.18 ± 0.03	-	900	-	0.35	0.74	Merino	(Rose and Pepper 1999)
15m	15m	0.39 ± 0.23	0.13 ± 0.05	-	900	-	0.23	0.67	Merino	(Rose and Pepper 1999)

***Table 7. Estimates of correlations among wool traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	Records	Sires	h_1^2	h_2^2	Breed	Reference
10m	10m	0.16 ± 0.11	0.19 ± 0.03	-	2,170	155	0.55	0.52	Merino	(Hill 2001)
16m	16m	0.37 ± 0.10	0.37 ± 0.02	-	2,170	155	0.47	0.62	Merino	(Hill 2001)
18m	18m	0.46	0.31	-	10,731	-	0.35	0.66	Merino	(Brown *et al.* 2002b)
12m	12m	0.59	0.32	-	635	-	0.30	0.73	Merino	(Brown *et al.* 2002b)
16m	16m	0.31 ± 0.03	-	0.27 ± 0.03	9,435	442	0.44	0.71	Merino	(Cloete *et al.* 2002a)
Adult	Adult	0.42 ± 0.04	0.28 ± 0.01	-	29,013	159	0.22	0.42	Merino	(Sherlock *et al.* 2003)
Greasy fleece wt	**Yield**									
12m	12m	-0.28 ± 0.16	-0.05 ± 0.03	-	2,799	63	0.32	0.53	Corriedale	(Brash *et al.* 1994b)
14m-female	14m-female	-0.26 ± 0.16	-0.11 ± 0.02	-	2,084	177	0.30	0.47	Merino	(Lewer *et al.* 1994)
14m-male	14m-male	-0.12 ± 0.18	-0.13 ± 0.02	-	1,527	180	0.42	0.46	Merino	(Lewer *et al.* 1994)
10m	10m	-0.24	0.07	-	2,535	141	0.38	0.60	Merino	(Swan *et al.* 1995)
10m	10m	-0.23 ± 0.17	-0.14 ± 0.03	-	1,284	68	0.40	0.41	Merino	(Brash *et al.* 1997)
16m	16m	0.17 ± 0.20	-0.06 ± 0.03	-	1,211	68	0.28	0.34	Merino	(Brash *et al.* 1997)
Adult	Adult	-0.10 ± 011	0.08 ± 0.03	-	1,492	53	0.55	0.51	Corriedale	(Benavides *et al.* 1998)
12m	12m	-0.08 ± 0.10	0.01 ± 0.02	-	2,987	114	0.33	0.39	Romney	(Wuliji *et al.* 1998)
15m	15m	-0.26 ± 0.18	0.10 ± 0.07	-	900	54	0.35	0.62	Merino	(Rose and Pepper 1999)
15m	15m	-0.27 ± 0.25	-0.07 ± 0.03	-	900	54	0.23	0.52	Merino	(Rose and Pepper 1999)
10m	10m	0.16 ± 0.10	0.13 ± 0.03	-	2,170	155	0.55	0.67	Merino	(Hill 2001)
16m	16m	-0.02 ± 0.11	-0.15 ± 0.03	-	2,170	155	0.47	0.67	Merino	(Hill 2001)
16m	16m	-0.20 ± 0.03	-	-0.04 ±0.03	9,409	442	0.44	0.63	Merino	(Cloete *et al.* 2002a)
Adult	Adult	-0.08 ± 0.05	-0.14 ± 0.01	-	29,013	159	0.22	0.34	Merino	(Sherlock *et al.* 2003)
Greasy fleece wt	**CV fibre diam**									
10m	10m	0.14	-0.12	-	2,535	141	0.38	0.33	Merino	(Swan *et al.* 1995)
10m	10m	-0.10 ± 0.17	0.09 ± 0.03	-	1,284	68	0.40	0.54	Merino	(Brash *et al.* 1997)
16m	16m	-0.04 ± 0.20	0.12 ± 0.03	-	1,211	68	0.28	0.41	Merino	(Brash *et al.* 1997)
10m	10m	0.06 ± 0.11	0.09 ± 0.03	-	2,170	155	0.55	0.59	Merino	(Hill 2001)
16m	16m	-0.04 ± 0.12	0.03 ± 0.03	-	2,170	155	0.47	0.60	Merino	(Hill 2001)
18m	18m	0.34	0.12	-	9,874	-	0.35	0.37	Merino	(Brown *et al.* 2002b)
12m	12m	0.03	0.04	-	472	-	0.30	0.31	Merino	(Brown *et al.* 2002b)
16m	16m	0.12 ± 0.05	-	0.04 ± 0.04	5,624	442	0.44	0.62	Merino	(Cloete *et al.* 2002a)

***Table 7. Estimates of correlations among wool traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	Records	Sires	h_1^2	h_2^2	Breed	Reference
Greasy fleece wt	**SD fibre diam**									
10m	10m	0.27	0.04	-	2,535	141	0.38	0.35	Merino	(Swan *et al.* 1995)
10m	10m	0.14 ± 0.11	0.19 ± 0.03	-	2,170	155	0.55	0.58	Merino	(Hill 2001)
16m	16m	0.23 ± 0.11	0.26 ± 0.02	-	2,170	155	0.47	0.57	Merino	(Hill 2001)
Greasy fleece wt	**Staple length**									
10m	10m	0.19	0.30	-	2,535	114	0.38	0.49	Merino	(Swan *et al.* 1995)
12m	12m	0.50 ± 0.09	0.40 ± 0.02	-	2,987	114	0.33	0.40	Romney	(Wuliji *et al.* 1998)
1y	1y	0.31 ± 0.03	-	-	25,990	1,096	0.12	0.17	Merino	(Nagy *et al.* 1999)
Adult	Adult	0.70	-	0.19	4,603	276	0.53	0.47	Columbia	(Bromley *et al.* 2000)
Adult	Adult	0.53	-	0.36	13,049	784	0.55	0.54	Polypay	(Bromley *et al.* 2000)
Adult	Adult	0.56	-	0.25	7,080	531	0.52	0.36	Rambouillet	(Bromley *et al.* 2000)
Adult	Adult	0.50	-	0.24	5,534	511	0.55	0.53	Targhee	(Bromley *et al.* 2000)
10m	10m	0.23 ± 0.12	0.29 ± 0.02	-	2,170	155	0.55	0.38	Merino	(Hill 2001)
16m	16m	0.35 ± 0.11	0.27 ± 0.02	-	2,170	155	0.47	0.50	Merino	(Hill 2001)
12m	12m	0.19	0.37	-	371	-	0.30	0.74	Merino	(Brown *et al.* 2002b)
18m	18m	-0.02	0.24	-	2,179	-	0.35	0.57	Merino	(Brown *et al.* 2002b)
Adult	Adult	0.55	-	0.20	2,449	226	0.53	0.55	Columbia	(Hanford *et al.* 2002)
Greasy fleece wt	**Staple strength**									
10m	10m	-0.28	0.11	-	2,535	141	0.38	0.23	Merino	(Swan *et al.* 1995)
12m	12m	0.41 ± 0.11	0.27 ± 0.03	-	2,987	114	0.33	0.30	Romney	(Wuliji *et al.* 1998)
10m	10m	0.27 ± 0.16	0.09 ± 0.03	-	2,170	155	0.55	0.24	Merino	(Hill 2001)
16m	16m	0.33 ± 0.12	0.18 ± 0.03	-	2,170	155	0.47	0.46	Merino	(Hill 2001)
Clean fleece wt	**Fibre diameter**									
12m	12m	0.29 ± 0.15	0.39 ± 0.02	-	2,798	63	0.29	0.56	Corriedale	(Brash *et al.* 1994b)
12m	16m	0.41 ± 0.25	0.34 ± 0.04	-	1,009	54	0.29	0.62	Corriedale	(Brash *et al.* 1994b)
14m-female	14m-female	0.14 ± 0.16	0.26 ± 0.02	-	2,084	177	0.27	0.59	Merino	(Lewer *et al.* 1994)
14m-male	14m-male	0.29 ± 0.16	0.28 ± 0.03	-	1,527	180	0.44	0.58	Merino	(Lewer *et al.* 1994)
10m	10m	0.21	0.26	-	2,535	141	0.31	0.58	Merino	(Swan *et al.* 1995)
10m	10m	0.38 ± 0.14	0.15 ± 0.03	-	1,284	68	0.39	0.58	Merino	(Brash *et al.* 1997)
16m	16m	0.51 ± 0.14	0.15 ± 0.03	-	1,284	68	0.34	0.55	Merino	(Brash *et al.* 1997)
9m	9m	0.14	0.20	-	5,100	196	0.29	0.68	Merino	(Purvis and Swan 1997)
Adult	Adult	0.34 ± 0.10	0.45 ± 0.02	-	1,492	53	0.52	0.52	Corriedale	(Benavides *et al.* 1998)

***Table 7. Estimates of correlations among wool traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	Records	Sires	h_1^2	h_2^2	Breed	Reference
16m	16m	0.26 ± 0.03	0.20 ± 0.02	-	7,385	667	0.33	0.63	Merino	(Cloete *et al.* 1998)
14m	14m	0.23	0.26	-	3,658	89	0.38	0.43	Merino	(Greeff and Karlsson 1998)
16m	16m	0.18 ± 0.05	0.16 ± 0.02	-	3,748	-	0.62	0.73	Afrino	(Snyman *et al.* 1998a)
12m	12m	0.42 ± 0.07	0.50 ± 0.02	-	2,987	114	0.34	0.55	Romney	(Wuliji *et al.* 1998)
16m	16m	0.37 ± 0.08	0.23 ± 0.02	-	3,665	165	0.35	0.57	Merino	(Greeff and Karlsson 1999)
15m	15m	0.47 ± 0.15	0.20 ± 0.03	-	900	54	0.34	0.74	Merino	(Rose and Pepper 1999)
15m	15m	0.43 ± 0.19	0.15 ± 0.04	-	900	54	0.20	0.67	Merino	(Rose and Pepper 1999)
16m	16m	0.25 ± 0.05	0.15 ± 0.02	-	1,508	120	0.41	0.69	Merino	(Taylor *et al.* 1999)
10m	10m	0.11 ± 0.12	0.16 ± 0.03	-	2,170	155	0.48	0.52	Merino	(Hill 2001)
16m	16m	0.38 ± 0.10	0.35 ± 0.02	-	2,170	155	0.57	0.62	Merino	(Hill 2001)
10m	10m	0.15 ± 0.12	0.21 ± 0.03	-	1,790	70	0.28	0.59	Merino	(Wuliji *et al.* 2001)
16m	16m	0.31 ± 0.03	-	0.25 ±0.03	9,389	442	0.42	0.71	Merino	(Cloete *et al.* 2002a)
12m	12m	0.32 ± 0.14	0.12 ± 0.03	-	1,729	100	0.37	0.62	Merino	(Lee *et al.* 2002)
28m	28m	0.06 ± 0.14	0.21 ± 0.03	-	1,292	150	0.52	0.72	Merino	(Lee *et al.* 2002)
16m	16m	0.45 ± 0.12	0.58 ± 0.10	-	1,045	125	-	-	Merino	(Fogarty *et al.* 2003)
Adult	Adult	0.38 ± 0.04	0.24 ± 0.01	-	27,445	159	0.25	0.42	Merino	(Sherlock *et al.* 2003)
Clean fleece wt	**Yield**									
12m	12m	0.30 ± 0.15	0.37 ± 0.02	-	2,798	63	0.29	0.53	Corriedale	(Brash *et al.* 1994b)
14m-female	14m-female	0.32 ± 0.16	0.34 ± 0.02	-	2,084	177	0.27	0.47	Merino	(Lewer *et al.* 1994)
14m-male	14m-male	0.40 ± 0.15	0.38 ± 0.02	-	1,527	180	0.44	0.46	Merino	(Lewer *et al.* 1994)
10m	10m	0.21	0.39	-	2,535	141	0.31	0.6	Merino	(Swan *et al.* 1995)
10m	10m	0.22 ± 0.16	0.32 ± 0.03	-	1,284	68	0.39	0.41	Merino	(Brash *et al.* 1997)
16m	16m	0.60 ± 0.13	0.48 ± 0.02	-	1,209	68	0.34	0.34	Merino	(Brash *et al.* 1997)
Adult	Adult	0.43 ± 0.09	0.50 ± 0.02	-	1,492	53	0.52	0.51	Corriedale	(Benavides *et al.* 1998)
16m	16m	0.38 ± 0.03	0.24 ± 0.02	-	7,385	667	0.33	0.69	Merino	(Cloete *et al.* 1998)
12m	12m	0.24 ± 0.09	0.30 ± 0.02	-	2,987	114	0.34	0.39	Romney	(Wuliji *et al.* 1998)
15m	15m	0.53 ± 0.14	0.44 ± 0.03	-	900	54	0.34	0.62	Merino	(Rose and Pepper 1999)
15m	15m	0.53 ± 0.19	0.25 ± 0.04	-	900	54	0.20	0.52	Merino	(Rose and Pepper 1999)
10m	10m	0.66 ± 0.07	0.52 ± 0.02	-	2,170	155	0.48	0.67	Merino	(Hill 2001)
16m	16m	0.49 ± 0.09	0.31 ± 0.02	-	2,170	155	0.57	0.67	Merino	(Hill 2001)
10m	10m	0.31 ± 0.03	0.54 ± 0.11	-	1,785	70	0.28	0.58	Merino	(Wuliji *et al.* 2001)
16m	16m	0.37 ± 0.03	-	0.31 ±0.03	9,409	442	0.42	0.63	Merino	(Cloete *et al.* 2002a)
Adult	Adult	0.39 ± 0.04	0.28 ± 0.01	-	27,445	159	0.25	0.34	Merino	(Sherlock *et al.* 2003)

***Table 7. Estimates of correlations among wool traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	Records	Sires	h_1^2	h_2^2	Breed	Reference
Clean fleece wt	**CV fibre diam**									
10m	10m	0.08	-0.16	-	2,535	141	0.31	0.33	Merino	(Swan *et al.* 1995)
10m	10m	0.05 ± 0.16	0.07 ± 0.03	-	1,284	68	0.39	0.54	Merino	(Brash *et al.* 1997)
16m	16m	0.15 ± 0.18	0.07 ± 0.03	-	1,284	68	0.34	0.41	Merino	(Brash *et al.* 1997)
9m	9m	-0.09	-0.10	-	5,100	196	0.29	0.55	Merino	(Purvis and Swan 1997)
14m	14m	0.20	-0.01	-	1,142	36	0.38	0.50	Merino	(Greeff and Karlsson 1998)
16m	16m	0.04 ± 0.09	0.03 ± 0.02	-	3,665	165	0.35	0.54	Merino	(Greeff and Karlsson 1999)
10m	10m	0.09 ± 0.12	-0.05 ± 0.03	-	2,170	155	0.48	0.59	Merino	(Hill 2001)
16m	16m	-0.08 ± 0.11	-0.01 ± 0.03	-	2,170	155	0.57	0.60	Merino	(Hill 2001)
10m	10m	-0.05 ± 0.13	-0.03 ± 0.03	-	1,789	70	0.28	0.60	Merino	(Wuliji *et al.* 2001)
16m	16m	0.07 ± 0.04	-	0.02 ±0.04	5,624	442	0.42	0.62	Merino	(Cloete *et al.* 2002a)
12m	12m	-0.02 ± 0.18	-0.11 ± 0.03	-	1,729	100	0.37	0.25	Merino	(Lee *et al.* 2002)
28m	28m	-0.13 ± 0.20	-0.07 ± 0.03	-	1,292	150	0.52	0.23	Merino	(Lee *et al.* 2002)
Clean fleece wt	**SD fibre diam**									
10m	10m	0.23	-0.01	-	2,535	141	0.31	0.35	Merino	(Swan *et al.* 1995)
10m	10m	0.05 ± 0.15	0.09 ± 0.03	-	2,170	155	0.48	0.58	Merino	(Hill 2001)
16m	16m	0.20 ± 0.11	0.21 ± 0.03	-	2,170	155	0.57	0.57	Merino	(Hill 2001)
Clean fleece wt	**Staple length**									
10m	10m	0.28	0.36	-	2,535	141	0.31	0.49	Merino	(Swan *et al.* 1995)
9m	9m	0.44	0.34	-	5,100	196	0.29	0.44	Merino	(Purvis and Swan 1997)
16m	16m	0.24 ± 0.03	0.21 ± 0.02	-	7,385	667	0.33	0.36	Merino	(Cloete *et al.* 1998)
14m	14m	0.25	0.33	-	1,981	52	0.38	0.40	Merino	(Greeff and Karlsson 1998)
12m	12m	0.58 ± 0.09	0.42 ± 0.02	-	2,987	114	0.34	0.40	Romney	(Wuliji *et al.* 1998)
10m	10m	0.28 ± 0.13	0.33 ± 0.02	-	2,170	155	0.48	0.38	Merino	(Hill 2001)
16m	16m	0.43 ± 0.10	0.36 ± 0.02	-	2,170	155	0.57	0.50	Merino	(Hill 2001)
10m	10m	0.21 ± 0.14	0.30 ± 0.04	-	579	70	0.28	0.71	Merino	(Wuliji *et al.* 2001)
Clean fleece wt	**Staple strength**									
10m	10m	-0.19	0.16	-	2,535	141	0.31	0.23	Merino	(Swan *et al.* 1995)
14m	14m	-0.14	0.10	-	1,989	52	0.38	0.26	Merino	(Greeff and Karlsson 1998)
12m	12m	0.53 ± 0.10	0.30 ± 0.03	-	2,987	114	0.34	0.30	Romney	(Wuliji *et al.* 1998)
16m	16m	0.10 ± 0.10	0.11 ± 0.02	-	3,665	165	0.35	0.36	Merino	(Greeff and Karlsson 1999)
10m	10m	0.32 ± 0.15	-0.06 ± 0.02	-	2,170	155	0.48	0.24	Merino	(Hill 2001)

***Table 7. Estimates of correlations among wool traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	Records	Sires	h_1^2	h_2^2	Breed	Reference
16m	16m	0.44 ± 0.10	0.24 ± 0.02	-	2,170	155	0.57	0.46	Merino	(Hill 2001)
10m	10m	0.36 ± 0.28	0.15 ± 0.04	-	579	70	0.28	0.13	Merino	(Wuliji *et al.* 2001)
Clean fleece wt	**Other wool**									
14m	Yellow	0.11 ± 0.14	0.01 ± 0.03	-	1,492	53	0.52	0.27	Corriedale	(Benavides *et al.* 1998)
16m	Curvature	-0.64 ± 0.08	-0.31 ± 0.03	-	1,508	120	0.41	0.39	Merino	(Taylor *et al.* 1999)
16m	CurvatureSD	-0.65 ± 0.07	-0.37 ± 0.03	-	1,508	120	0.41	0.52	Merino	(Taylor *et al.* 1999)
10m	RTC	-0.22 ± 0.13	-0.15 ± 0.03	-	1,313	70	0.28	0.46	Merino	(Wuliji *et al.* 2001)
10m	Bulk	-0.13 ± 0.15	-0.09 ± 0.03	-	1,313	70	0.28	0.38	Merino	(Wuliji *et al.* 2001)
10m	Bright	0.21 ± 0.14	0.10 ± 0.03	-	1,359	70	0.28	0.38	Merino	(Wuliji *et al.* 2001)
10m	Yellow	0.24 ± 0.14	0.08 ± 0.03	-	1,359	70	0.28	0.42	Merino	(Wuliji *et al.* 2001)
Fibre diameter	**Yield**									
12m	12m	0.10 ± 0.14	0.09 ± 0.03	-	2,799	63	0.56	0.53	Corriedale	(Brash *et al.* 1994b)
16m	12m	0.28 ± 0.23	0.16 ± 0.05	-	1,009	54	0.62	0.53	Corriedale	(Brash *et al.* 1994b)
14m-female	14m-female	-0.18 ± 0.14	0.02 ± 0.03	-	2,084	177	0.59	0.47	Merino	(Lewer *et al.* 1994)
14m-male	14m-male	-0.08 ± 0.17	-0.05 ± 0.03	-	1,527	180	0.58	0.46	Merino	(Lewer *et al.* 1994)
10m	10m	-0.05	0.00	-	2,535	141	0.58	0.60	Merino	(Swan *et al.* 1995)
10m	10m	0.11 ± 0.15	-0.03 ± 0.03	-	1,284	68	0.58	0.41	Merino	(Brash *et al.* 1997)
16m	16m	0.16 ± 0.17	-0.10 ± 0.03	-	1,211	68	0.55	0.34	Merino	(Brash *et al.* 1997)
Adult	Adult	0.02 ± 0.11	0.12 ± 0.03	-	1,492	53	0.52	0.51	Corriedale	(Benavides *et al.* 1998)
16m	16m	-0.01 ± 0.03	-0.12 ± 0.02	-	7,385	667	0.63	0.69	Merino	(Cloete *et al.* 1998)
12m	12m	0.19 ± 0.09	0.14 ± 0.03	-	2,987	114	0.55	0.39	Romney	(Wuliji *et al.* 1998)
15m	15m	0.14 ± 0.16	0.08 ± 0.03	-	900	54	0.74	0.62	Merino	(Rose and Pepper 1999)
15m	15m	0.10 ± 0.20	0.03 ± 0.05	-	900	54	0.67	0.52	Merino	(Rose and Pepper 1999)
10m	10m	0.08 ± 0.11	0.02 ± 0.03	-	2,170	155	0.52	0.67	Merino	(Hill 2001)
16m	16m	0.09 ± 0.10	-0.02 ± 0.03	-	2,170	155	0.62	0.67	Merino	(Hill 2001)
10m	10m	0.09 ± 0.09	0.00 ± 0.03	-	1,790	70	0.59	0.58	Merino	(Wuliji *et al.* 2001)
16m	16m	-0.01 ± 0.03	-	0.00± 0.04	9,409	442	0.71	0.63	Merino	(Cloete *et al.* 2002a)
Adult	Adult	-0.02 ± 0.05	-0.08 ± 0.01	-	85,782	159	0.42	0.34	Merino	(Sherlock *et al.* 2003)
Fibre diameter	**CV fibre diam**									
10m	10m	-0.27	-0.24	-	2,535	141	0.58	0.33	Merino	(Swan *et al.* 1995)
10m	10m	-0.17 ± 0.14	-0.04 ± 0.03	-	1,284	68	0.58	0.54	Merino	(Brash *et al.* 1997)
16m	16m	-0.16 ± 0.15	-0.01 ± 0.03	-	1,211	68	0.55	0.41	Merino	(Brash *et al.* 1997)

***Table 7. Estimates of correlations among wool traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	Records	Sires	h_1^2	h_2^2	Breed	Reference
9m	9m	-0.14	-0.10	-	5,100	196	0.68	0.55	Merino	(Purvis and Swan 1997)
14m	14m	0.11	-0.03	-	1,142	36	0.43	0.50	Merino	(Greeff and Karlsson 1998)
16m	16m	-0.14 ± 0.07	-0.16 ± 0.02	-	3,665	165	0.57	0.54	Merino	(Greeff and Karlsson 1999)
10m	10m	-0.05 ± 0.12	-0.09 ± 0.03	-	2,170	155	0.52	0.59	Merino	(Hill 2001)
16m	16m	-0.24 ± 0.10	-0.16 ± 0.03	-	2,170	155	0.62	0.60	Merino	(Hill 2001)
10m	10m	-0.03 ± 0.09	-0.05 ± 0.03	-	1,789	70	0.59	0.60	Merino	(Wuliji *et al.* 2001)
18m	18m	0.06	0.06	-	9,874	-	0.66	0.37	Merino	(Brown *et al.* 2002b)
12m	12m	-0.23	-0.20	-	472	-	0.73	0.31	Merino	(Brown *et al.* 2002b)
16m	16m	-0.10 ± 0.04	-	-0.13±0.05	5,624	442	0.71	0.62	Merino	(Cloete *et al.* 2002a)
12m	12m	-0.10 ± 0.16	-0.02 ± 0.03	-	1,729	100	0.62	0.25	Merino	(Lee *et al.* 2002)
28m	28m	0.24 ± 0.19	0.07 ± 0.03	-	1,292	150	0.72	0.23	Merino	(Lee *et al.* 2002)
Fibre diameter	**SD fibre diam**									
10m	10m	0.42	0.32	-	2,535	141	0.58	0.35	Merino	(Swan *et al.* 1995)
10m	10m	0.52 ± 0.09	0.52 ± 0.02	-	2,170	155	0.52	0.58	Merino	(Hill 2001)
16m	16m	0.44 ± 0.09	0.48 ± 0.02	-	2,170	155	0.62	0.57	Merino	(Hill 2001)
Fibre diameter	**Staple length**									
10m	10m	-0.05	0.11	-	2,535	141	0.58	0.49	Merino	(Swan *et al.* 1995)
9m	9m	0.14	0.16	-	5,100	196	0.68	0.44	Merino	(Purvis and Swan 1997)
16m	16m	0.34 ± 0.03	0.13 ± 0.02	-	7,385	667	0.63	0.36	Merino	(Cloete *et al.* 1998)
14m	14m	0.25	0.18	-	1,981	52	0.43	0.40	Merino	(Greeff and Karlsson 1998)
12m	12m	0.37 ± 0.09	0.35 ± 0.03	-	2,987	114	0.55	0.40	Romney	(Wuliji *et al.* 1998)
		0.07 ± 0.01	-	-	25,990	1,096	0.19	0.17	Merino	(Nagy *et al.* 1999)
10m	10m	0.22 ± 0.13	0.26 ± 0.02	-	2,170	155	0.52	0.38	Merino	(Hill 2001)
16m	16m	0.30 ± 0.10	0.26 ± 0.02	-	2,170	155	0.62	0.50	Merino	(Hill 2001)
10m	10m	0.00 ± 0.12	0.07 ± 0.05	-	579	70	0.59	0.71	Merino	(Wuliji *et al.* 2001)
12m	12m	0.24	0.29	-	371	-	0.73	0.74	Merino	(Brown *et al.* 2002b)
18m	18m	0.19	0.20	-	2,179	-	0.66	0.57	Merino	(Brown *et al.* 2002b)
Fibre diameter	**Staple strength**									
10m	10m	0.27	0.17	-	2,535	141	0.58	0.23	Merino	(Swan *et al.* 1995)
14m	14m	-0.07	0.06	-	1,981	52	0.43	0.26	Merino	(Greeff and Karlsson 1998)
12m	12m	0.61 ± 0.08	0.32 ± 0.03	-	2,987	114	0.55	0.30	Romney	(Wuliji *et al.* 1998)
16m	16m	0.31 ± 0.07	0.24 ± 0.02	-	3,665	165	0.57	0.36	Merino	(Greeff and Karlsson 1999)

***Table 7. Estimates of correlations among wool traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	Records	Sires	h_1^2	h_2^2	Breed	Reference
10m	10m	-0.17 ± 0.14	0.17 ± 0.03	-	2,170	155	0.52	0.24	Merino	(Hill 2001)
16m	16m	0.50 ± 0.09	0.33 ± 0.02	-	2,170	155	0.62	0.46	Merino	(Hill 2001)
10m	10m	0.52 ± 0.25	0.25 ± 0.04	-	579	70	0.59	0.13	Merino	(Wuliji *et al.* 2001)
Fibre diameter	**Other wool**									
14m	Yellow	0.24 ± 0.14	0.02 ± 0.03	-	1,492	53	0.52	0.27	Corriedale	(Benavides *et al.* 1998)
16m	Curvature	-0.20 ± 0.08	-0.02 ± 0.03	-	1,508	120	0.69	0.39	Merino	(Taylor *et al.* 1999)
16m	CurvatureSD	-0.29 ± 0.07	-0.13 ± 0.03	-	1,508	120	0.69	0.52	Merino	(Taylor *et al.* 1999)
10m	RTC	0.66 ± 0.07	0.54 ± 0.02	-	1,313	70	0.59	0.46	Merino	(Wuliji *et al.* 2001)
10m	Bulk	0.48 ± 0.09	0.38 ± 0.03	-	1,313	70	0.59	0.38	Merino	(Wuliji *et al.* 2001)
10m	Bright	0.16 ± 0.11	0.04 ± 0.03	-	1,359	70	0.59	0.38	Merino	(Wuliji *et al.* 2001)
10m	Yellow	0.62 ± 0.09	0.37 ± 0.03	-	1,359	70	0.59	0.42	Merino	(Wuliji *et al.* 2001)
Yield	**CV fibre diam**									
10m	10m	-0.18	-0.16	-	2,535	141	0.60	0.33	Merino	(Swan *et al.* 1995)
10m	10m	0.38 ± 0.14	-0.03 ± 0.03	-	1,284	68	0.41	0.54	Merino	(Brash *et al.* 1997)
16m	16m	0.37 ± 0.17	-0.04 ± 0.03	-	1,211	68	0.34	0.41	Merino	(Brash *et al.* 1997)
10m	10m	-0.16 ± 0.10	-0.09 ± 0.03	-	2,170	155	0.67	0.59	Merino	(Hill 2001)
16m	16m	-0.07 ± 0.10	-0.09 ± 0.03	-	2,170	155	0.67	0.60	Merino	(Hill 2001)
10m	10m	-0.26 ± 0.09	-0.18 ± 0.03	-	1,789	70	0.58	0.60	Merino	(Wuliji *et al.* 2001)
16m	16m	-0.09 ± 0.04	-	-0.08±0.04	5,624	442	0.63	0.62	Merino	(Cloete *et al.* 2002a)
Yield	**SD fibre diam**									
10m	10m	-0.20	-0.16	-	2,535	141	0.60	0.35	Merino	(Swan *et al.* 1995)
10m	10m	-0.09 ± 0.10	-0.06 ± 0.03	-	2,170	155	0.67	0.58	Merino	(Hill 2001)
16m	16m	0.00 ± 0.10	-0.09 ± 0.03	-	2,170	155	0.67	0.57	Merino	(Hill 2001)
Yield	**Staple length**									
10m	10m	0.19	0.25	-	2,535	141	0.60	0.49	Merino	(Swan *et al.* 1995)
16m	16m	0.34 ± 0.02	0.16 ± 0.02	-	7,385	667	0.69	0.36	Merino	(Cloete *et al.* 1998)
12m	12m	0.29 ± 0.12	0.11 ± 0.03	-	2,987	114	0.39	0.40	Romney	(Wuliji *et al.* 1998)
10m	10m	0.30 ± 0.11	0.21 ± 0.03	-	2,170	155	0.67	0.38	Merino	(Hill 2001)
16m	16m	0.23 ± 0.11	0.21 ± 0.03	-	2,170	155	0.67	0.50	Merino	(Hill 2001)
10m	10m	0.19 ± 0.12	0.22 ± 0.04	-	579	70	0.58	0.71	Merino	(Wuliji *et al.* 2001)

***Table 7. Estimates of correlations among wool traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	Records	Sires	h_1^2	h_2^2	Breed	Reference
Yield	**Staple strength**									
10m	10m	0.22	0.20	-	2,535	141	0.60	0.23	Merino	(Swan *et al.* 1995)
12m	12m	0.43 ± 0.11	0.12 ± 0.03	-	2,987	114	0.39	0.30	Romney	(Wuliji *et al.* 1998)
10m	10m	0.28 ± 0.14	0.08 ± 0.03	-	2,170	155	0.67	0.24	Merino	(Hill 2001)
16m	16m	0.30 ± 0.11	0.15 ± 0.03	-	2,170	155	0.67	0.46	Merino	(Hill 2001)
10m	10m	0.52 ± 0.22	0.13 ± 0.04	-	579	70	0.58	0.13	Merino	(Wuliji *et al.* 2001)
Yield	**Other wool**									
14m	Yellow	-0.15 ± 0.13	-0.11 ± 0.03	-	1,492	53	0.51	0.27	Corriedale	(Benavides *et al.* 1998)
10m	RTC	-0.23 ± 0.11	-0.24 ± 0.03	-	1,313	70	0.58	0.46	Merino	(Wuliji *et al.* 2001)
10m	Bulk	-0.06 ± 0.12	-0.09 ± 0.03	-	1,313	70	0.58	0.38	Merino	(Wuliji *et al.* 2001)
10m	Bright	0.29 ± 0.11	0.13 ± 0.03	-	1,359	70	0.58	0.38	Merino	(Wuliji *et al.* 2001)
10m	Yellow	0.35 ± 0.11	0.12 ± 0.03	-	1,359	70	0.58	0.42	Merino	(Wuliji *et al.* 2001)
CV fibre diam	**SD fibre diam**									
10m	10m	0.76	0.84	-	2,535	141	0.33	0.35	Merino	(Swan *et al.* 1995)
10m	10m	0.83 ± 0.04	0.81 ± 0.01	-	2,170	155	0.59	0.58	Merino	(Hill 2001)
16m	16m	0.77 ± 0.04	0.79 ± 0.01	-	2,170	155	0.60	0.57	Merino	(Hill 2001)
CV fibre diam	**Staple length**									
10m	10m	0.01	-0.09	-	2,535	141	0.33	0.49	Merino	(Swan *et al.* 1995)
9m	9m	-0.08	-0.12	-	5,100	196	0.55	0.44	Merino	(Purvis and Swan 1997)
14m	14m	-0.06	-0.16	-	1,142	36	0.50	0.40	Merino	(Greeff and Karlsson 1998)
10m	10m	-0.20 ± 0.12	-0.11 ± 0.03	-	2,170	155	0.59	0.38	Merino	(Hill 2001)
16m	16m	-0.21 ± 0.11	-0.13 ± 0.03	-	2,170	155	0.60	0.50	Merino	(Hill 2001)
10m	10m	-0.16 ± 0.12	-0.10 ± 0.05	-	579	70	0.60	0.71	Merino	(Wuliji *et al.* 2001)
12m	12m	-0.04	-0.12	-	371	-	0.31	0.74	Merino	(Brown *et al.* 2002b)
18m	18m	0.11	-0.12	-	2,179	-	0.37	0.57	Merino	(Brown *et al.* 2002b)
CV fibre diam	**Staple strength**									
10m	10m	-0.58	-0.36	-	2,535	141	0.33	0.23	Merino	(Swan *et al.* 1995)
14m	14m	-0.36	-0.37	-	1,142	36	0.50	0.26	Merino	(Greeff and Karlsson 1998)
16m	16m	-0.55 ± 0.06	-0.40 ± 0.02	-	3,665	165	0.54	0.36	Merino	(Greeff and Karlsson 1999)
10m	10m	-0.38 ± 0.13	-0.18 ± 0.03	-	2,170	155	0.59	0.24	Merino	(Hill 2001)

16m	16m	-0.42 ± 0.10	-0.35 ± 0.02	-	2,170	155	0.60	0.46	Merino	(Hill 2001)
10m	10m	-0.68 ± 0.18	-0.47 ± 0.03	-	579	70	0.60	0.13	Merino	(Wuliji *et al.* 2001)
Staple length	**Staple strength**									
10m	10m	-0.31	-0.12	-	2,535	141	0.49	0.23	Merino	(Swan *et al.* 1995)
14m	14m	-0.31	-0.04	-	1,981	52	0.40	0.26	Merino	(Greeff and Karlsson 1998)
12m	12m	0.44 ± 0.11	0.34 ± 0.02	-	2,987	114	0.40	0.30	Romney	(Wuliji *et al.* 1998)
10m	10m	-0.20 ± 0.17	-0.09 ± 0.03	-	2,170	155	0.38	0.24	Merino	(Hill 2001)
16m	16m	0.06 ± 0.12	0.14 ± 0.03	-	2,170	155	0.50	0.46	Merino	(Hill 2001)
10m	10m	0.35 ± 0.30	0.03 ± 0.05	-	579	70	0.71	0.13	Merino	(Wuliji *et al.* 2001)

Table 8. Estimates of correlations between ages for wool traits

Estimates of genetic ($r_g \pm$ s.e.), phenotypic ($r_p \pm$ s.e.) and maternal ($r_m \pm$ s.e.) correlations for traits 1 and 2, numbers of records and sires, heritability (h_i^2), breed and reference

Trait 1	Trait 2	r_g	r_p	r_m	Records	Sires	h_1^2	h_2^2	Breed	Reference
Greasy fleece wt	**Greasy fleece wt**									
10m	16m	0.45	0.55	-	2,200	162	0.58	0.44	Merino	(Ponzoni *et al*. 1995)
10m	16m	0.57 ± 0.14	0.54 ± 0.02	-	1,209	68	0.40	0.28	Merino	(Brash *et al.* 1997)
Parity 1	Parity 2	0.87	-	0.63	2,349	-	0.23	0.19	Baluchi	(Yazdi *et al.* 1997)
Parity 1	Parity 2	0.85	-	0.34	2,194	-	0.27	0.07	Baluchi	(Yazdi *et al.* 1997)
Parity 1	Parity 3	0.90	-	0.76	1,873	-	0.23	0.20	Baluchi	(Yazdi *et al.* 1997)
Parity 1	Parity 3	0.84	-	0.40	1,639	-	0.27	0.21	Baluchi	(Yazdi *et al.* 1997)
Parity 1	Parity 4	0.83	-	0.68	1,365	-	0.23	0.15	Baluchi	(Yazdi *et al.* 1997)
Parity 1	Parity 4	0.85	-	0.38	1,220	-	0.27	0.18	Baluchi	(Yazdi *et al.* 1997)
Parity 1	Parity 5	0.87	-	0.39	912	-	0.23	0.20	Baluchi	(Yazdi *et al.* 1997)
Parity 1	Parity 5	0.89	-	0.45	868	-	0.27	0.12	Baluchi	(Yazdi *et al.* 1997)
Parity 1	Parity 6	0.90	-	0.54	549	-	0.23	0.16	Baluchi	(Yazdi *et al.* 1997)
Parity 1	Parity 6	0.82	-	0.72	551	-	0.27	0.21	Baluchi	(Yazdi *et al.* 1997)
1y	2 y	0.75 ± 0.02	-	-	33,163	1,188	0.12	0.11	Merino	(Nagy *et al.* 1999)
1y	3 y	0.64 ± 0.03	-	-	29,718	1,188	0.12	0.11	Merino	(Nagy *et al.* 1999)
1y	4 y	0.61 ± 0.03	-	-	26,285	1,188	0.12	0.11	Merino	(Nagy *et al.* 1999)
1y	5 y	0.67 ± 0.03	-	-	22,513	1,188	0.12	0.11	Merino	(Nagy *et al.* 1999)
10m	16m	055 ± 0.08	0.54 ± 0.02	-	2,170	155	0.55	0.47	Merino	(Hill 2001)
Clean fleece wt	**Clean fleece wt**									
16m	28m	0.94*	0.57	-	1,906	-	0.50	0.39	Merino	(Hickson *et al*. 1994)
16m	40m	0.90**	0.59	-	1,765	-	0.50	0.51	Merino	(Hickson *et al.* 1994)
16m	52m	0.85**	0.58	-	1,400	-	0.50	0.54	Merino	(Hickson *et al.* 1994)
16m	64m	0.84**	0.60	-	1,187	-	0.50	0.59	Merino	(Hickson *et al.* 1994)
16m	76m	0.85**	0.57	-	1,109	-	0.50	0.49	Merino	(Hickson *et al.* 1994)
10m	16m	0.52	0.55	-	2,200	162	0.59	0.51	Merino	(Ponzoni *et al.* 1995)
10m	16m	0.75 ± 0.10	0.54 ± 0.02	-	1,209	68	0.39	0.34	Merino	(Brash *et al.* 1997)
15m	2yr	0.87 ± 0.04	-	-	3,237	-	0.37	0.40	Merino	(Coelli *et al.* 1998)
15m	3yr	0.72 ± 0.04	-	-	3,237	-	0.37	0.49	Merino	(Coelli *et al.* 1998)
15m	4yr	0.75 ± 0.04	-	-	3,237	-	0.37	0.48	Merino	(Coelli *et al.* 1998)
15m	5yr	0.71 ± 0.05	-	-	3,237	-	0.37	0.47	Merino	(Coelli *et al.* 1998)
15m	6yr	0.74 ± 0.06	-	-	3,237	-	0.37	0.40	Merino	(Coelli *et al.* 1998)
10m	16m	0.77 ± 0.06	0.57 ± 0.02	-	2,170	155	0.48	0.57	Merino	(Hill 2001)

***Table 8. Estimates of correlations between ages for wool traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_m	Records	Sires	h_1^2	h_2^2	Breed	Reference
Fibre diameter	**Fibre diameter**									
16m	28m	0.96	0.57	-	1,937	-	0.54	0.46	Merino	(Hickson *et al.* 1994)
16m	40m	0.91**	0.60	-	1,636	-	0.54	0.50	Merino	(Hickson *et al.* 1994)
16m	52m	0.82**	0.54	-	1,192	-	0.54	0.62	Merino	(Hickson *et al.* 1994)
16m	64m	0.87**	0.55	-	854	-	0.54	0.54	Merino	(Hickson *et al.* 1994)
10m	16m	0.91	0.72	-	2,200	162	0.45	0.59	Merino	(Ponzoni *et al.* 1995)
10m	16m	0.89 ± 0.04	0.77 ± 0.01	-	1,211	68	0.58	0.55	Merino	(Brash *et al.* 1997)
15m	2yr	0.93 ± 0.02	-	-	3,237	-	0.62	0.63	Merino	(Coelli *et al.* 1998)
15m	3yr	0.92 ± 0.02	-	-	3,237	-	0.62	0.64	Merino	(Coelli *et al.* 1998)
15m	4yr	0.88 ± 0.02	-	-	3,237	-	0.62	0.64	Merino	(Coelli *et al.* 1998)
15m	5yr	0.83 ± 0.03	-	-	3,237	-	0.62	0.62	Merino	(Coelli *et al.* 1998)
15m	6yr	0.80 ± 0.03	-	-	3,237	-	0.62	0.62	Merino	(Coelli *et al.* 1998)
10m	16m	0.95 ± 0.02	0.74 ± 0.01		2,170	155	0.52	0.62	Merino	(Hill 2001)
Yield	**Yield**									
10m	16m	0.80	0.56	-	2,200	162	0.57	0.72	Merino	(Ponzoni *et al.* 1995)
10m	16m	0.76 ± 0.10	0.49 ± 0.02	-	1,211	68	0.41	0.34	Merino	(Brash *et al.* 1997)
10m	16m	0.83 ± 0.04	0.60 ± 0.02	-	2,170	155	0.67	0.67	Merino	(Hill 2001)
CV fibre diam	**CV fibre diam**									
10m	16m	0.92	0.62	-	2,200	162	0.59	0.61	Merino	(Ponzoni *et al.* 1995)
10m	16m	0.94 ± 0.04	0.68 ± 0.02	-	1,211	68	0.54	0.41	Merino	(Brash *et al.* 1997)
10m	16m	0.95 ± 0.03	0.67 ± 0.01	-	2,170	155	0.59	0.60	Merino	(Hill 2001)
Staple length	**Staple length**									
10m	16m	0.71	0.61	-	2,200	162	0.32	0.48	Merino	(Ponzoni *et al.* 1995)
10m	16m	0.78 ± 0.10	0.64 ± 0.02	-	2,170	155	0.38	0.50	Merino	(Hill 2001)
Staple strength	**Staple strength**									
10m	16m	0.68	0.23	-	2,200	162	0.25	0.47	Merino	(Ponzoni *et al.* 1995)
10m	16m	0.79 ± 0.11	0.22 ± 0.02	-	2,170	155	0.24	0.46	Merino	(Hill 2001)

* P<0.05, ** P<0.01

Table 9. Estimates of correlations among growth traits

Estimates of genetic ($r_g \pm$ s.e.), phenotypic ($r_p \pm$ s.e.), maternal genetic ($r_m \pm$ s.e.),environmental ($r_e \pm$ s.e.) and permanent environmental ($r_{pe} \pm$ s.e.) correlations for traits 1 and 2, numbers of records and sires, heritability (h_i^2), breed and reference

Trait 1	Trait 2	r_g	r_p	r_m	r_e	r_{pe}	Records	Sires	h_1^2	h_2^2	Breed	Reference
Birth wt	**Weaning wt**											
	3m - female	0.06 ± 0.17	0.27 ± 0.02	-	-	-	2,106	204	0.32	0.37	Merino	(Lewer *et al.* 1994)
	3m - male	0.08 ± 0.21	0.26 ± 0.02	-	-	-	1,514	179	0.16	0.39	Merino	(Lewer *et al.* 1994)
	11w	0.52	0.36	0.65	0.21	-	3,701	157	0.29	0.27	Merino	(Vaez Torshizi *et al.* 1996)
	45d	0.59	-	-	0.51	-	7,294	-	0.43	0.31	Segurena	(Analla *et al.* 1997)
	100d	0.40 ± 0.10	0.39	0.68 ± 0.10	-	0.38 ± 0.18	7,716	180	0.14	0.19	Baluchi	(Yazdi *et al.* 1997)
	100d	0.81 ± 0.05	0.41	0.49 ± 0.12	-	0.62 ± 0.07	8,446	182	0.20	0.13	Baluchi	(Yazdi *et al.* 1997)
	92d	0.57(0.15) [1]	-	0.51(0.13)	0.21(0.08)	-	1,880	50	0.32	0.37	Corriedale	(Jara *et al.* 1998)
	7w	0.45	0.43	-	-	0.57	7,518	295	0.09	0.09	Composite	(Mousa *et al.* 1999)
	42d	0.51 ± 0.12	0.48	0.42 ± 0.22		0.68 ± 0.06	2,889	89	0.11	0.28	Dorper	(Neser *et al.* 2001)
	100d	0.27 ± 0.24	0.38	0.54 ± 0.27		0.52 ± 0.13	2,836	89	0.11	0.20	Dorper	(Neser *et al.* 2001)
	-	0.37 ± 0.16	0.37 ± 0.03	-	-	-	1,823	70	0.35	0.34	Merino	(Wuliji *et al.* 2001)
	90d	0.69	0.28	-	-	-	10,370	63	0.05	0.06	Timahdite	(Boujenane and Kansari 2002)
	120d	0.16	-	0.93	0.16	0.89	8,310	681	0.19	0.26	Merino	(Duguma *et al.* 2002b)
	120d	0.56	-	0.58	0.33	0.46	23,903	1,020	0.27	0.16	Columbia	(Hanford *et al.* 2002)
	56d	-0.33 ± 0.11	0.53 ± 0.02	0.71 ± 0.40	-	-0.03 ± 0.20	1,932	119	0.05	0.18	Suffolk	(Simm *et al.* 2002)
Birth wt	**Post weaning wt**											
	8m - female	0.21 ± 0.16	0.24 ± 0.02	-	-	-	2,106	204	0.32	0.34	Merino	(Lewer *et al.* 1994)
	8m - male	-0.24 ± 0.28	0.21 ± 0.03	-	-	-	1,220	149	0.16	0.25	Merino	(Lewer *et al.* 1994)
	11m - female	0.20 ± 0.15	0.23 ± 0.02	-	-	-	2,106	204	0.32	0.43	Merino	(Lewer *et al.* 1994)
	11m - male	-0.32 ± 0.31	0.27 ± 0.02	-	-	-	1,614	179	0.16	0.27	Merino	(Lewer *et al.* 1994)
	120d	0.44	-	0.64	-	-	4,524	131	0.06	0.15	Swedish Fine	(Nasholm and Danell 1996)
	174d	0.48	-	0.69	-	-	4,214	131	0.06	0.21	Swedish Fine	(Nasholm and Danell 1996)
	10m	0.43	0.26	0.30	0.13	-	3,252	157	0.29	0.24	Merino	(Vaez Torshizi *et al.* 1996)
	90d	0.56	-	-	0.33	-	7,294	-	0.43	0.26	Segurena	(Analla *et al.* 1997)
	6m	0.26 ± 0.10	0.32	0.66 ± 0.13	-	0.38 ± 0.25	6,864	180	0.14	0.23	Baluchi	(Yazdi *et al.* 1997)
	6m	0.61 ± 0.06	0.36	0.58 ± 0.14	-	0.69 ± 0.14	6,863	182	0.20	0.23	Baluchi	(Yazdi *et al.* 1997)
	6m	0.27 ± 0.16	0.30 ± 0.03	-	-	-	1,812	70	0.35	0.44	Merino	(Wuliji *et al.* 2001)
	5m	-0.27 ± 0.11	0.45 ± 0.02	0.67 ± 0.40	-	-0.17 ±0.20	1,932	119	0.05	0.29	Suffolk	(Simm *et al.* 2002)

Table 9. Estimates of correlations among growth traits *- Continued*

Trait 1	Trait 2	r_g	r_p	r_m	r_e	r_{pe}	Records	Sires	h_1^2	h_2^2	Breed	Reference
Birth wt	**Hogget wt**											
	14m - female	0.26 ± 0.15	0.22 ± 0.02	-	-	-	2,106	204	0.32	0.48	Merino	(Lewer *et al.* 1994)
	14m - male	-0.30 ± 0.31	0.26 ± 0.02	-	-	-	1,614	179	0.16	0.27	Merino	(Lewer *et al.* 1994)
	Mature	0.36	-	-	-	-	340	41	0.07	0.63	Swedish Fine	(Nasholm and Danell 1996)
	16m	0.35	0.26	0.06	0.14	-	2,990	157	0.29	0.29	Merino	(Vaez Torshizi *et al.* 1996)
	22m	0.17	0.21	0.06	0.16	-	2,362	129	0.29	0.29	Merino	(Vaez Torshizi *et al.* 1996)
	14m	0.19(0.17) [1]	-	0.05(0.24)	0.14(0.08)	-	1,880	50	0.32	0.39	Corriedale	(Jara *et al.* 1998)
	19m	0.35	0.27	-	-	0.99	2,221	295	0.09	0.35	Composite	(Mousa *et al.* 1999)
	31m	-0.01	0.39	-	-	0.99	1,538	295	0.09	0.44	Composite	(Mousa *et al.* 1999)
	12m	0.10 ± 0.16	0.27 ± 0.03	-	-	-	1,803	70	0.35	0.43	Merino	(Wuliji *et al.* 2001)
	16m	0.27 ± 0.17	0.32 ± 0.03	-	-	-	1,803	70	0.35	0.49	Merino	(Wuliji *et al.* 2001)
Birth wt	**Growth rate**											
	63 - 130d	-0.02	0.13	-	-	0.40	6,752	295	0.09	0.19	Composite	(Mousa *et al.* 1999)
	0 - 120d	0.18	-	0.38	0.29	0.46	7,750	263	0.18	0.07	Columbia	(Bromley *et al.* 2000)
	0 - 120d	0.57	-	0.40	0.28	0.48	9,524	246	0.16	0.20	Polypay	(Bromley *et al.* 2000)
	0 - 120d	0.31	-	-0.03	0.24	0.63	9,530	451	0.19	0.11	Rambouillet	(Bromley *et al.* 2000)
	0 - 120d	0.43	-	-0.03	0.20	0.56	9,321	492	0.22	0.16	Targhee	(Bromley *et al.* 2000)
	0 - 120d	0.04	-	0.60	0.02	0.82	8,310	681	0.19	0.27	Merino	(Duguma *et al.* 2002b)
Weaning wt	**Post weaning wt**											
3m - female	8m - female	0.70 ± 0.08	0.66 ± 0.01	-	-	-	2,238	204	0.37	0.34	Merino	(Lewer *et al.* 1994)
3m - male	8m - male	0.83 ± 0.10	0.66 ± 0.03	-	-	-	1,220	149	0.39	0.25	Merino	(Lewer *et al.* 1994)
3m - female	11m - female	0.65 ± 0.09	0.57 ± 0.02	-	-	-	2,238	204	0.37	0.43	Merino	(Lewer *et al.* 1994)
3m - male	11m - male	0.32 ± 0.22	0.59 ± 0.02	-	-	-	1,614	179	0.39	0.27	Merino	(Lewer *et al.* 1994)
65d	90d	1.00	0.86	-	-	-	853	54	0.04	0.09	Composite	(Al-Shorepy and Notter 1996)
65d	120d	0.86	0.62	-	-	-	662	52	0.04	0.18	Composite	(Al-Shorepy and Notter 1996)
11w	10m	0.77	0.53	0.85	0.35	-	3,252	157	0.27	0.24	Merino	(Vaez Torshizi *et al.* 1996)
45d	90d	0.76	-	-	0.69	-	7,294	-	0.31	0.26	Segurena	(Analla *et al.* 1997)
100d	6m	0.95 ± 0.02	0.76	0.64 ± 0.15	-	0.95 ± 0.06	6,864	180	0.19	0.23	Baluchi	(Yazdi *et al.* 1997)
100d	6m	0.85 ± 0.03	0.76	0.78 ± 0.10	-	0.96 ± 0.08	6,863	182	0.13	0.23	Baluchi	(Yazdi *et al.* 1997)
4m	9m	0.98 ± 0.01	0.80 ± 0.01	-	-	-	3,748	145	0.41	0.63	Afrino	(Snyman *et al.* 1998a)
60d	120d	0.85 ± 0.02	-	-	-	-	20,505	1,260	0.17	0.21	Merino	(Nagy *et al.* 1999)
-	6m	0.83 ± 0.06	0.78 ± 0.01	-	-	-	1,812	70	0.34	0.44	Merino	(Wuliji *et al.* 2001)
56d	5m	0.53 ± 0.11	0.69 ± 0.02	0.86 ± 0.40	-	0.52 ± 0.20	1,932	119	0.18	0.29	Suffolk	(Simm *et al.* 2002)

Table 9. Estimates of correlations among growth traits *- Continued*

Trait 1	Trait 2	r_g	r_p	r_m	r_e	r_{pe}	Records	Sires	h_1^2	h_2^2	Breed	Reference
Weaning wt	**Hogget wt**											
4m	12m	0.83 ± 0.10	0.49 ± 0.01	-	-	-	2,795	64	0.34	0.13	Corriedale	(Brash *et al.* 1994b)
4m	12m	0.84 ± 0.05	0.61 ± 0.01	-	-	-	4,066	84	0.45	0.38	Coopworth	(Brash *et al.* 1994c)
3m - female	14m - female	0.68 ± 0.09	0.59 ± 0.02	-	-	-	2,238	204	0.37	0.48	Merino	(Lewer *et al.* 1994)
3m - male	14m - male	0.45 ± 0.19	0.58 ± 0.02	-	-	-	1,614	179	0.39	0.27	Merino	(Lewer *et al.* 1994)
11w	16m	0.59	0.48	0.61	0.30	-	2,990	157	0.27	0.29	Merino	(Vaez Torshizi *et al.* 1996)
11w	22m	0.61	0.44	0.80	0.24	-	2,362	129	0.27	0.29	Merino	(Vaez Torshizi *et al.* 1996)
100d	12m	0.94 ± 0.02	0.60	0.59 ± 0.20	-	0.93 ± 0.26	5,082	180	0.19	0.32	Baluchi	(Yazdi *et al.* 1997)
100d	12m	0.93 ± 0.03	0.59	0.74 ± 0.37		0.94 ± 0.16	4,329	182	0.13	0.26	Baluchi	(Yazdi *et al.* 1997)
3m	15m	0.79	0.50				3,664	89	0.34	0.40	Merino	(Greeff and Karlsson 1998)
92d	14m	0.65(0.12) [1]	-	0.46(0.16)	0.36(0.07)	-	1,880	50	0.37	0.39	Corriedale	(Jara *et al.* 1998)
4m	18m	0.92 ± 0.02	0.64 ± 0.01	-	-	-	3,748	145	0.41	0.60	Afrino	(Snyman *et al.* 1998a)
80d	12m	0.57 ± 0.11	0.62 ± 0.01	-	-	-	2,987	114	0.19	0.49	Romney	(Wuliji *et al.* 1998)
7w	19m	0.43	0.34	-	-	0.99	2,221	295	0.09	0.35	Composite	(Mousa *et al.* 1999)
7w	31m	0.32	0.30	-	-	0.99	1,538	295	0.09	0.44	Composite	(Mousa *et al.* 1999)
60d	14m	0.53 ± 0.03	-	-	-	-	20,505	1,260	0.17	0.13	Merino	(Nagy *et al.* 1999)
-	12m	0.65 ± 0.09	0.64 ± 0.02	-	-	-	1,803	70	0.34	0.43	Merino	(Wuliji *et al.* 2001)
-	16m	0.68 ± 0.10	0.62 ± 0.02	-	-	-	1,803	70	0.34	0.49	Merino	(Wuliji *et al.* 2001)
12w	14m	0.54 ± 0.13	-	-	-	-	1,022	87	0.16	0.29	Welsh Mountain	(Ap Dewi *et al.* 2002)
12w	Adult	0.82 ± 0.06	-	-	-	-	2,376	150	0.16	0.49	Welsh Mountain	(Ap Dewi *et al.* 2002)
Weaning wt	**Growth rate**											
60d	60 - 120d	0.69	-	-	-0.05	-	4,657	274	0.16	0.21	Suffolk	(Notter 1998)
60d	60 - 120d	0.41	-	-	0.15	-	2,805	95	0.08	0.23	Suffolk	(Notter 1998)
7w	63 - 130d	0.37	0.16	-	-	0.49	6,752	295	0.09	0.19	Composite	(Mousa *et al.* 1999)
120d	0 - 120d	0.99	-	0.85	0.99	0.99	8,310	681	0.19	0.27	Merino	(Duguma *et al.* 2002b)
Post weaning wt	**Hogget wt**											
8m-female	11m - female	0.98 ± 0.01	0.81 ± 0.01	-	-	-	2,238	204	0.34	0.43	Merino	(Lewer *et al.* 1994)
8m-male	11m - male	0.97 ± 0.05	0.80 ± 0.01	-	-	-	1,271	165	0.25	0.27	Merino	(Lewer *et al.* 1994)
8m-female	14m - female	0.90 ± 0.04	0.79 ± 0.01	-	-	-	2,238	204	0.34	0.48	Merino	(Lewer *et al.* 1994)
8m-male	14m - male	0.91 ± 0.07	0.74 ± 0.01	-	-	-	1,271	165	0.25	0.27	Merino	(Lewer *et al.* 1994)
11m - female	14m - female	0.96 ± 0.01	0.83 ± 0.01	-	-	-	2,238	204	0.43	0.48	Merino	(Lewer *et al.* 1994)
11m - male	14m - male	0.97 ± 0.04	0.82 ± 0.01	-	-	-	1,614	179	0.27	0.27	Merino	(Lewer *et al.* 1994)
90d	120d	0.94	0.87	-	-	-	662	52	0.09	0.18	Composite	(Al-Shorepy and Notter 1996)

Table 9. Estimates of correlations among growth traits *- Continued*

Trait 1	Trait 2	r_g	r_p	r_m	r_e	r_{pe}	Records	Sires	h_1^2	h_2^2	Breed	Reference
120d	174d	0.95	-	0.99	-	-	4,234	131	0.14	0.18	Swedish Fine	(Nasholm and Danell 1996)
120d	Mature	0.85	-	-	-	-	340	41	0.17	0.44	Swedish Fine	(Nasholm and Danell 1996)
174d	Mature	0.82	-	-	-	-	340	41	0.24	0.39	Swedish Fine	(Nasholm and Danell 1996)
10m	16m	0.97	0.53	0.77	0.31	-	2,990	157	0.24	0.29	Merino	(Vaez Torshizi *et al.* 1996)
10m	22m	0.92	0.50	0.91	0.27	-	2,362	129	0.24	0.29	Merino	(Vaez Torshizi *et al.* 1996)
6m	12m	0.96 ± 0.01	0.73	0.53 ± 0.21	-	0.89 ± 0.23	5,082	180	0.23	0.32	Baluchi	(Yazdi *et al.* 1997)
6m	12m	0.95 ± 0.02	0.74	0.67 ± 0.31	-	0.92 ± 0.22	4,329	182	0.23	0.26	Baluchi	(Yazdi *et al.* 1997)
9m	18m	0.97 ± 0.00	0.81 ± 0.01	-	-	-	3,748	145	0.63	0.60	Afrino	(Snyman *et al.* 1998a)
19m	31m	0.97	0.65	-	-	0.99	1,538	295	0.35	0.44	Composite	(Mousa *et al.* 1999)
120d	14m	0.54 ± 0.03	-	-	-	-	20,505	1,260	0.21	0.13	Merino	(Nagy *et al.* 1999)
6m	12m	0.85 ± 0.05	0.83 ± 0.01	-	-	-	1,803	70	0.34	0.43	Merino	(Wuliji *et al.* 2001)
6m	16m	0.93 ± 0.04	0.78 ± 0.01	-	-	-	1,803	70	0.34	0.49	Merino	(Wuliji *et al.* 2001)
12m	16m	0.92 ± 0.03	0.86 ± 0.01	-	-	-	1,803	70	0.43	0.49	Merino	(Wuliji *et al.* 2001)
Post weaning wt	**Growth rate**											
120d	120 - 365d	0.19	-	-	-0.34*	-	1,237	19	0.10	0.21	Targhee	(Notter and Hough 1997)
Hogget wt	**Growth rate**											
19m	63 - 130d	0.78	0.34	-	-	0.09	2,221	295	0.35	0.19	Composite	(Mousa *et al.* 1999)
31m	63 - 130d	0.69	0.37	-	-	0.08	1,538	295	0.44	0.19	Composite	(Mousa *et al.* 1999)

* $P<0.05$

[1] Baysian estimate, mean (standard deviation).

Table 10. Estimates of correlations among carcass and meat traits

Estimates of genetic ($r_g \pm$ s.e.) and phenotypic ($r_p \pm$s.e.) correlations for traits 1 and 2, numbers of records and sires, heritability (h_i^2), breed and reference

Trait 1	Trait 2	r_g	r_p	Records	Sires	h_1^2	h_2^2	Breed	Reference
Weight	**Dressing yield**								
ADG 0-110d		-0.17	-0.09	21,121	832	0.22	0.35	Inra401	(Bibe *et al.* 2002)
Live 19m		-0.22 ± 0.13	-0.07 ± 0.03	1,020	125	0.51	0.40	Merino	(Fogarty *et al.* 2003)
Weight	**Fat**								
Live 5m	C live 5m adj wt	0.28 ± 0.14	0.01 ± 0.02	4,894	118	0.23	0.22	Poll Dorset	(Atkins *et al.* 1991)
Live 9m	C live 9m adj wt	-0.07± 0.09	0.00 ± 0.01	13,157	318	0.21	0.32	Poll Dorset	(Atkins *et al.* 1991)
Live 14m	C live 14m adj wt	-0.05± 0.09	0.02 ± 0.01	10,108	245	0.31	0.33	Poll Dorset	(Atkins *et al.* 1991)
Live 10m	C live 10m adj wt	-0.26± 0.60	0.00 ± 0.04	711	55	0.22	0.06	Border Leicester	(Brash *et al.* 1992)
Live 14m	C live 14m adj wt	0.18 ± 0.16	0.00 ± 0.02	3,973	208	0.14	0.44	Border Leicester	(Brash *et al.* 1992)
Live 9m	C live 9m adj wt	-0.34 ± 0.19	-0.02 ± 0.03	2,207	108	0.31	0.33	Suffolk	(Brash *et al.* 1992)
Live 14m	C live 14m adj wt	0.26 ± 0.09	0.01 ± 0.03	1,427	80	0.25	0.21	Suffolk	(Brash *et al.* 1992)
Live 13m	C live 13m adj wt	0.15 ± 0.23	-0.02 ± 0.03	1,511	101	0.25	0.35	Corriedale	(Brash *et al.* 1992)
Live 14m	C live 14m adj wt	-0.10 ± 0.23	-0.01 ± 0.02	2,253	58	0.40	0.18	Coopworth	(Brash *et al.* 1992)
Live 14m	C live 14m adj wt	-0.29 ± 0.59	-0.01 ± 0.04	841	45	0.09	0.12	Gromark	(Brash *et al.* 1992)
Carcass	C live	0.52	0.53	1,602	102	0.26	0.20	Romney	(Waldron *et al.* 1992)
Carcass	C carcass	0.41	0.56	1,602	102	0.26	0.28	Romney	(Waldron *et al.* 1992)
Carcass	GR carcass	0.61	0.67	1,602	102	0.26	0.26	Romney	(Waldron *et al.* 1992)
Live 4m	C live 12m adj wt	0.53 ± 0.22	0.21 ± 0.02	2,184	50	0.45	0.13	Coopworth	(Brash *et al.* 1994c)
Live 12m	C live 12m adj wt	0.64 ± 0.20	0.41 ± 0.02	2,184	50	0.38	0.13	Coopworth	(Brash *et al.* 1994c)
Live 14m	C live 14m adj wt	-0.30 ± 0.16	0.03 ± 0.03	1,454	130	0.28	0.44	Hyfer	(Fogarty *et al.* 1994)
Carcass	Depth carcass	0.36	0.52	3,592	350	0.08	0.26	Crossbred	(Pollott *et al.* 1994)
Live 17w	Depth live 17w	-0.21	0.40	1,896	32	0.14	0.16	Scottish Blackface	(Conington *et al.* 1995)
Live adult	C fat live adult	0.54 ± 0.14	0.46 ± 0.02	1,772	126	0.67	0.47	Merino	(Lee *et al.* 1995)
Live 13m	Depth live 13m	0.31	0.37	386	-	0.19	0.40	Welsh Mountain	(Saatci *et al.* 1998)
Live 14m	C live 14m	0.67 ± 0.14	0.34 ± 0.06	1,022	87	0.29	0.24	Welsh Mountain	(Ap Dewi *et al.* 2002)
ADG 0 - 110d	Depth carcass110d	-0.05	0.07	21,121	832	0.22	0.29	Inra401	(Bibe *et al.* 2002)
Live 12m	C fat live 12m	0.82 ± 0.37	0.40 ± 0.03	1,729	100	0.38	0.06	Merino	(Lee *et al.* 2002)
Live 28m	C fat live 28m	0.65 ± 0.17	0.41 ± 0.02	1,292	150	0.34	0.22	Merino	(Lee *et al.* 2002)
Live birth	C fat live 5m	-0.08 ± 0.11	0.05 ± 0.02	1,392	119	0.05	0.56	Suffolk	(Simm *et al.* 2002)
Live wean 56d	C fat live 5m	0.16 ± 0.11	0.33 ± 0.02	1,392	119	0.18	0.56	Suffolk	(Simm *et al.* 2002)

***Table 10. Estimates of correlations among carcass and meat traits** - Continued*

Trait 1	Trait 2	r_g	r_p	Records	Sires	h_1^2	h_2^2	Breed	Reference
Live 5m	C fat live 5m	0.42 ± 0.11	0.47 ± 0.02	1,392	119	0.29	0.56	Suffolk	(Simm *et al.* 2002)
Live 12m	C live 12m	0.29 ± 0.09	0.27 ± 0.02	6,412	264	0.35	0.19	Merino	(Clarke *et al.* 2003)
Live 15m	C live 15m	0.12 ± 0.10	0.16 ± 0.02	5,273	230	0.49	0.19	Merino	(Clarke *et al.* 2003)
Live 19m	GR carcass	-0.12 ± 0.11	-0.10 ± 0.04	1,020	125	0.51	0.33	Merino	(Fogarty *et al.* 2003)
Live 19m	C carcass	-0.12 ± 0.10	-0.06 ± 0.04	1,020	125	0.51	0.20	Merino	(Fogarty *et al.* 2003)
Live 5m	C live5m	0.16 ± 0.18	0.27 ± 0.03	1,657	86	0.28	0.26	Merino	(Ingham *et al.* 2003)
Weight	**Muscle**								
Live 7m	EMD carcass	0.33	0.53	1,602	102	0.27	0.38	Romney	(Waldron *et al.* 1992)
Live 7m	EMW carcass	0.38	0.47	1,602	102	0.27	0.63	Romney	(Waldron *et al.* 1992)
Live 7m	EMA carcass	0.46	0.52	1,602	102	0.27	0.31	Romney	(Waldron *et al.* 1992)
Carcass	EMD carcass	0.48	0.59	1,602	102	0.26	0.38	Romney	(Waldron *et al.* 1992)
Carcass	EMW carcass	0.44	0.49	1,602	102	0.26	0.63	Romney	(Waldron *et al.* 1992)
Carcass	EMA carcass	0.59	0.57	1,602	102	0.26	0.31	Romney	(Waldron *et al.* 1992)
Carcass	EMD carcass	0.60	0.48	3,592	350	0.08	0.23	Crossbred	(Pollott *et al.* 1994)
Carcass	EMW carcass	0.19	0.35	3,592	350	0.08	0.28	Crossbred	(Pollott *et al.* 1994)
Live 17w	EMD live 17w	0.30	0.55	1,896	32	0.14	0.27	Scottish Blackface	(Conington *et al.* 1995)
Live 13m	EMD live 13m	0.59	0.28	386	-	0.19	0.19	Welsh Mountain	(Saatci *et al.* 1998)
Live 14m	EMD live 14m	0.46 ± 0.18	0.30 ± 0.06	1,022	87	0.29	0.22	Welsh Mountain	(Ap Dewi *et al.* 2002)
ADG 0-110d	EMA carcass 110d	-0.05	0.07	7,491	832	0.22	0.59	Inra401	(Bibe *et al.* 2002)
Live birth	EMD live 5m	-0.08 ± 0.11	0.20 ± 0.02	1,392	119	0.05	0.41	Suffolk	(Simm *et al.* 2002)
Live wean 56d	EMD live 5m	0.49 ± 0.11	0.33 ± 0.02	1,392	119	0.18	0.41	Suffolk	(Simm *et al.* 2002)
Live 5m	EMD live 5m	0.31 ± 0.11	0.43 ± 0.02	1,392	119	0.29	0.41	Suffolk	(Simm *et al.* 2002)
Live 12m	EMD live 12m	-0.20 ± 0.08	-0.15 ± 0.02	6,435	264	0.35	0.27	Merino	(Clarke *et al.* 2003)
Live 15m	EMD live 15m	-0.12 ± 0.10	-0.06 ± 0.02	4,906	224	0.49	0.26	Merino	(Clarke *et al.* 2003)
Live 19m	EMD carcass	0.01 ± 0.10	0.02 ± 0.03	1,020	125	0.51	0.29	Merino	(Fogarty *et al.* 2003)
Live 19m	EMW carcass	0.10 ± 0.10	-0.00 ± 0.04	1,020	125	0.51	0.15	Merino	(Fogarty *et al.* 2003)
Live 19m	EMA carcass	0.06 ± 0.11	0.00 ± 0.04	1,020	125	0.51	0.24	Merino	(Fogarty *et al.* 2003)
Live 5m	EMD live 5m	0.57 ± 0.10	0.51 ± 0.02	1,657	86	0.28	0.35	Merino	(Ingham *et al.* 2003)
Weight	**Conformation**								
Carcass	Carcass	0.54	0.53	3,592	350	0.08	0.26	Crossbred	(Pollott *et al.* 1994)
ADG 0-110d	Carcass 110d	-0.03	0.12	21,121	832	0.22	0.30	Inra401	(Bibe *et al.* 2002)

Table 10. Estimates of correlations among carcass and meat traits *- Continued*

Trait 1	Trait 2	r_g	r_p	Records	Sires	h_1^2	h_2^2	Breed	Reference
Weight	**Meat yield**								
Carcass	Carcass lean kg	0.88	0.91	1,602	102	0.26	0.37	Romney	(Waldron *et al.* 1992)
Weight	**Meat quality**								
Live 19m	pH	-0.21 ± 0.11	-0.10 ± 0.04	957	125	0.51	0.30	Merino	(Fogarty *et al.* 2003)
Live 19m	Colour *L**	0.13 ± 0.09	0.06 ± 0.04	1,020	125	0.51	0.15	Merino	(Fogarty *et al.* 2003)
Dressing yield	**Fat**								
	Depth carcass	0.40	0.29	1,208	30	0.53	0.40	Inra401	(Moreno *et al.* 2001)
	Depth carcass	0.16	0.26	21,121	832	0.35	0.29	Inra401	(Bibe *et al.* 2002)
	C carcass	-0.04 ± 0.09	-0.07 ± 0.03	1,045	125	0.40	0.20	Merino	(Fogarty *et al.* 2003)
	GR carcass	-0.21 ± 0.11	0.06 ± 0.03	1,045	125	0.40	0.33	Merino	(Fogarty *et al.* 2003)
Dressing yield	**Muscle**								
	EMA carcass	0.66	0.36	442	30	0.53	0.57	Inra401	(Moreno *et al.* 2001)
	EMA carcass	0.47	0.42	7,491	832	0.35	0.59	Inra401	(Bibe *et al.* 2002)
	EMD carcass	-0.01 ± 0.10	-0.02 ± 0.04	1,045	125	0.40	0.29	Merino	(Fogarty *et al.* 2003)
	EMW carcass	-0.04 ± 0.09	0.03 ± 0.03	1,045	125	0.40	0.15	Merino	(Fogarty *et al.* 2003)
	EMA carcass	-0.03 ± 0.09	0.01 ± 0.03	1,045	125	0.40	0.24	Merino	(Fogarty *et al.* 2003)
Dressing yield	**Conformation**								
	Carcass	0.52	0.21	1,210	30	0.53	0.37	Inra401	(Moreno *et al.* 2001)
	Carcass	0.39	0.30	21,121	832	0.35	0.30	Inra401	(Bibe *et al.* 2002)
Dressing yield	**Meat quality**								
	pH	0.19 ± 0.10	0.06 ± 0.04	1,045	125	0.40	0.30	Merino	(Fogarty *et al.* 2003)
	Colour *L**	-0.24 ± 0.09	0.06 ± 0.04	1,045	125	0.40	0.15	Merino	(Fogarty *et al.* 2003)
Fat	**Fat**								
C live	C carcass	0.77	0.51	1,602	102	0.20	0.28	Romney	(Waldron *et al.* 1992)
C live	GR carcass	0.88	0.56	1,602	102	0.20	0.26	Romney	(Waldron *et al.* 1992)
C carcass	GR carcass	0.77	0.70	1,602	102	0.28	0.26	Romney	(Waldron *et al.* 1992)
C carcass	GR carcass	0.98 ± 0.14	0.37 ± 0.03	1,045	125	0.20	0.33	Merino	(Fogarty *et al.* 2003)

***Table 10. Estimates of correlations among carcass and meat traits** - Continued*

Trait 1	Trait 2	r_g	r_p	Records	Sires	h_1^2	h_2^2	Breed	Reference
Fat	**Muscle**								
Carcass fat kg	EMD carcass	0.11	0.45	1,602	102	0.33	0.38	Romney	(Waldron *et al.* 1992)
Carcass fat kg	EMA carcass	0.07	0.38	1,602	102	0.33	0.31	Romney	(Waldron *et al.* 1992)
C 7m live	EMD 7m live	0.30 ± 0.75	0.42 ± 0.02	2,178	89	0.01	0.15	Poll Dorset	(Gilmour *et al.* 1994)
C 7m live	EMW 7m live	-0.09 ± 0.90	0.41 ± 0.02	2,178	89	0.01	0.05	Poll Dorset	(Gilmour *et al.* 1994)
C 7m live	EMA 7m live	0.22 ± 0.74	0.47 ± 0.02	2,178	89	0.01	0.14	Poll Dorset	(Gilmour *et al.* 1994)
C 12m live	EMD 12m live	0.57 ± 0.22	0.57 ± 0.02	1,650	82	0.18	0.11	Poll Dorset	(Gilmour *et al.* 1994)
C 12m live	EMW 12m live	0.36 ± 0.39	0.51 ± 0.02	1,650	82	0.18	0.04	Poll Dorset	(Gilmour *et al.* 1994)
C 12m live	EMA 12m live	0.53 ± 0.24	0.61 ± 0.02	1,650	82	0.18	0.08	Poll Dorset	(Gilmour *et al.* 1994)
C 16m live	EMD 16m live	0.58 ± 0.34	0.30 ± 0.04	510	19	0.28	0.16	Poll Dorset	(Gilmour *et al.* 1994)
C 16m live	EMW 16m live	0.19 ± 0.48	0.23 ± 0.04	510	19	0.28	0.12	Poll Dorset	(Gilmour *et al.* 1994)
C 16m live	EMA 16m live	0.44 ± 0.39	0.30 ± 0.04	510	19	0.28	0.15	Poll Dorset	(Gilmour *et al.* 1994)
Carcass depth	EMD carcass	-0.23	-0.09	3,592	350	0.31	0.23	Crossbred	(Pollott *et al.* 1994)
Carcass depth	EMW carcass	-0.20	-0.25	3,592	350	0.31	0.32	Crossbred	(Pollott *et al.* 1994)
Depth live	EMD live	-0.21	0.35	1,896	32	0.16	0.27	Scottish Blackface	(Conington *et al.* 1995)
Live 13m	EMD live 13m	0.17	0.13	386	-	0.40	0.19	Welsh Mountain	(Saatci *et al.* 1998)
Carcass depth	EMA carcass	-0.11	0.10	442	30	0.40	0.57	Inra401	(Moreno *et al.* 2001)
C live 14m	EMD live 14m	0.05 ± 0.23	0.13 ± 0.06	1,024	87	0.24	0.22	Welsh Mountain	(Ap Dewi *et al.* 2002)
Carcass depth	EMA carcass	-0.21	-0.02	7,491	832	0.29	0.59	Inra401	(Bibe *et al.* 2002)
C live 5m	EMD live 5m	0.14 ± 0.11	0.17 ± 0.02	1,392	119	0.56	0.41	Suffolk	(Simm *et al.* 2002)
C live 12m	EMD live 12m	0.41 ± 0.09	0.28 ± 0.01	6,412	264	0.19	0.27	Merino	(Clarke *et al.* 2003)
C live 15m	EMD live 15m	0.61 ± 0.10	0.23 ± 0.02	4,906	224	0.19	0.26	Merino	(Clarke *et al.* 2003)
GR carcass	EMD carcass	0.21 ± 0.21	0.08 ± 0.03	1,045	125	0.33	0.29	Merino	(Fogarty *et al.* 2003)
GR carcass	EMW carcass	-0.32 ± 0.25	-0.11 ± 0.03	1,045	125	0.33	0.15	Merino	(Fogarty *et al.* 2003)
GR carcass	EMA carcass	-0.00 ± 0.08	0.01 ± 0.03	1,045	125	0.33	0.24	Merino	(Fogarty *et al.* 2003)
C carcass	EMD carcass	-0.43 ± 0.23	-0.00 ± 0.03	1,045	125	0.20	0.29	Merino	(Fogarty *et al.* 2003)
C carcass	EMW carcass	-0.39 ± 0.30	-0.11 ± 0.03	1,045	125	0.20	0.15	Merino	(Fogarty *et al.* 2003)
C carcass	EMA carcass	0.05 ± 0.07	-0.06 ± 0.03	1,045	125	0.20	0.24	Merino	(Fogarty *et al.* 2003)
C live 5m	EMD live 5m	0.60 ± 0.12	0.36 ± 0.02	1,657	86	0.26	0.35	Merino	(Ingham *et al.* 2003)
Depth live	EMD live	0.25 ± 0.15	0.24 ± 0.04	1,465	60	0.44	0.28	Scottish Blackface	(Roden *et al.* 2003)
Depth live	EMW live	-0.06 ± 0.27	0.18 ± 0.03	1,465	60	0.44	0.07	Scottish Blackface	(Roden *et al.* 2003)

***Table 10. Estimates of correlations among carcass and meat traits** - Continued*

Trait 1	Trait 2	r_g	r_p	Records	Sires	h_1^2	h_2^2	Breed	Reference
Fat	**Conformation**								
Depth carcass	Carcass	0.17	0.21	3,592	350	0.31	0.29	Crossbred	(Pollott *et al*. 1994)
Carcass fat (g/kg)	Carcass	-0.06 ± 0.16	0.17	1,252	67	0.29	0.20	Suffolk cross	(Jones *et al.* 1999)
Depth carcass	Carcass	0.07	0.14	1,208	30	0.40	0.37	Inra401	(Moreno *et al.* 2001)
Depth carcass	Carcass	0.11	0.11	21,121	832	0.29	0.30	Inra401	(Bibe *et al*. 2002)
Fat	**Meat yield**								
Carcass fat kg	Carcass lean kg	0.25	0.62	1,602	102	0.33	0.37	Romney	(Waldron *et al.* 1992)
Carcass fat (g/kg)	Carcass lean (g/kg)	-0.86 ± 0.04	-0.76	1,252	67	0.29	0.33	Suffolk cross	(Jones *et al.* 1999)
Fat	**Meat quality**								
GR carcass	pH	0.14 ± 0.21	-0.11 ± 0.03	1,045	125	0.33	0.30	Merino	(Fogarty *et al.* 2003)
GR carcass	Colour L*	-0.11 ± 0.28	0.06 ± 0.03	1,045	125	0.33	0.15	Merino	(Fogarty *et al.* 2003)
C carcass	pH	0.16 ± 0.25	-0.03 ± 0.03	1,045	125	0.20	0.30	Merino	(Fogarty *et al.* 2003)
C carcass	Colour L*	-0.35 ± 0.33	0.06 ± 0.03	1,045	125	0.20	0.15	Merino	(Fogarty *et al.* 2003)
Muscle	**Muscle**								
EMD carcass	EMW carcass	0.51	0.40	1,602	102	0.38	0.63	Romney	(Waldron *et al.* 1992)
EMD carcass	EMA carcass	0.88	0.58	1,602	102	0.38	0.31	Romney	(Waldron *et al.* 1992)
EMW carcass	EMA carcass	0.77	0.55	1,602	102	0.63	0.31	Romney	(Waldron *et al.* 1992)
EMD 7m live	EMW 7m live	0.90 ± 0.20	0.51 ± 0.02	2,178	89	0.15	0.05	Poll Dorset	(Gilmour *et al.* 1994)
EMD 7m live	EMA 7m live	0.99 ± 0.02	0.88 ± 0.01	2,178	89	0.15	0.14	Poll Dorset	(Gilmour *et al.* 1994)
EMW 7m live	EMA 7m live	0.96 ± 0.08	0.85 ± 0.01	2,178	89	0.05	0.14	Poll Dorset	(Gilmour *et al.* 1994)
EMD 12m live	EMW 12m live	0.91 ± 0.14	0.60 ± 0.02	1,650	82	0.11	0.04	Poll Dorset	(Gilmour *et al.* 1994)
EMD 12m live	EMA 12m live	0.99 ± 0.02	0.91 ± 0.01	1,650	82	0.11	0.08	Poll Dorset	(Gilmour *et al.* 1994)
EMW 12m live	EMA 12m live	0.95 ± 0.07	0.87 ± 0.01	1,650	82	0.04	0.08	Poll Dorset	(Gilmour *et al.* 1994)
EMD 16m live	EMW 16m live	0.79 ± 0.25	0.59 ± 0.03	510	19	0.16	0.12	Poll Dorset	(Gilmour *et al.* 1994)
EMD 16m live	EMA 16m live	0.96 ± 0.06	0.90 ± 0.01	510	19	0.16	0.15	Poll Dorset	(Gilmour *et al.* 1994)
EMW 16m live	EMA 16m live	0.93 ± 0.09	0.88 ± 0.01	510	19	0.12	0.15	Poll Dorset	(Gilmour *et al.* 1994)
EMD carcass	EMW carcass	0.00	0.00	3,592	350	0.23	0.32	Crossbred	(Pollott *et al.* 1994)
EMD carcass	EMW carcass	0.28 ± 0.26	0.28 ± 0.03	1,045	125	0.29	0.15	Merino	(Fogarty *et al*. 2003)
EMD carcass	EMA carcass	0.83 ± 0.03	0.85 ± 0.01	1,045	125	0.29	0.24	Merino	(Fogarty *et al*. 2003)
EMW carcass	EMA carcass	0.70 ± 0.04	0.69 ± 0.02	1,045	125	0.15	0.24	Merino	(Fogarty *et al*. 2003)
EMD live	EMW live	0.09 ± 0.29	0.53 ± 0.03	1,465	60	0.28	0.07	Scottish Blackface	(Roden *et al.* 2003)

Table 10. Estimates of correlations among carcass and meat traits *- Continued*

Trait 1	Trait 2	r_g	r_p	Records	Sires	h_1^2	h_2^2	Breed	Reference
Muscle	**Conformation**								
EMD carcass	Carcass	0.38	0.18	3,592	350	0.23	0.29	Crossbred	(Pollott *et al.* 1994)
EMW carcass	Carcass	-0.09	-0.03	3,592	350	0.32	0.29	Crossbred	(Pollott *et al.* 1994)
EMA carcass	Carcass	0.33	0.25	442	30	0.57	0.37	Inra401	(Moreno *et al.* 2001)
EMA carcass	Carcass	0.22	0.27	7,491	832	0.59	0.30	Inra401	(Bibe *et al.* 2002)
Muscle	**Meat yield**								
EMD carcass	Carcass lean kg	0.60	0.62	1,602	102	0.38	0.37	Romney	(Waldron *et al.* 1992)
EMA carcass	Carcass lean kg	0.76	0.64	1,602	102	0.31	0.37	Romney	(Waldron *et al.* 1992)
Muscle	**Meat quality**								
EMD carcass	pH	0.19 ± 0.22	0.01 ± 0.03	1,045	125	0.29	0.30	Merino	(Fogarty *et al.* 2003)
EMD carcass	Colour *L**	-0.01 ± 0.29	0.10 ± 0.03	1,045	125	0.29	0.15	Merino	(Fogarty *et al.* 2003)
EMA carcass	pH	-0.02 ± 0.08	-0.12 ± 0.03	1,045	125	0.24	0.30	Merino	(Fogarty *et al.* 2003)
EMA carcass	Colour *L**	-0.12 ± 0.07	0.06 ± 0.03	1,045	125	0.24	0.15	Merino	(Fogarty *et al.* 2003)
Conformation	**Meat yield**								
Carcass	Carcass lean (g/kg)	0.00 ± 0.17	-0.10	1,252	67	0.20	0.33	Suffolk cross	(Jones *et al.* 1999)
Meat quality	**Meat quality**								
pH	Colour *L**	-0.56 ± 0.23	0.15 ± 0.08	1,045	125	0.30	0.15	Merino	(Fogarty *et al.* 2003)

EMD = eye muscle depth, EMW = eye muscle width, EMA = eye muscle area; Fat C = fat depth at the C site, Fat GR = tissue depth at the GR site

Table 11. Estimates of correlations among reproduction traits

Estimates of genetic ($r_g \pm$ s.e.), phenotypic ($r_p \pm$ s.e.), environmental ($r_e \pm$ s.e.) and permanent environmental ($r_{pe} \pm$ s.e.) correlations for traits 1 and 2, numbers of records and sires, heritability (h_i^2), breed and reference

Trait 1	Trait 2	r_g	r_p	r_e	r_{pe}	Records	Sires	h_1^2	h_2^2	Breed	Reference
NLW/EJ	**NLB/EJ**										
		1.00 ± 0.10	0.77 ± 0.02	-	-	8,243	72	0.04	0.06	Dorset	(Brash *et al.* 1994d)
Mean 3 joinings	Mean 3 joinings	0.71 ± 0.17	0.67 ± 0.03	-	-	1,619	130	0.10	0.19	Hyfer	(Fogarty *et al.* 1994)
Sum 3 parities	Sum 3 parities	1.00 ± 0.00	0.89 ± 0.01	-	-	618	113	0.29	0.23	Afrino	(Snyman *et al.* 1998a)
		0.84	-	0.59	0.52	31,401	916	0.06	0.09	Columbia	(Hanford *et al.* 2002)
		0.29	-	0.00	-	22,938	-	0.07	0.09	Composite	(Rosati *et al.* 2002)
		0.91 ± 0.13	0.61 ± 0.01	0.57 ± 0.01	0.87 ± 0.11	2,955	216	0.04	0.10	Merino	(Cloete *et al.* 2004)
NLW/EJ	**WW/EJ**										
Mean 3 joinings	Mean 3 joinings	0.94 ± 0.16	0.93 ± 0.00	-	-	1,619	130	0.10	0.13	Hyfer	(Fogarty *et al.* 1994)
Sum 3 parities	Sum 3 parities	0.84 ± 0.07	0.92 ± 0.00	-	-	618	113	0.29	0.17	Afrino	(Snyman *et al.* 1998a)
		0.06	-	0.25	-	22,938	-	0.07	0.11	Composite	(Rosati *et al.* 2002)
		0.87 ± 0.08	0.94 ± 0.01	0.94 ± 0.01	0.99 ± 0.01	2,955	216	0.04	0.04	Merino	(Cloete *et al.* 2004)
NLW/EJ	**NLW/EL**										
		-0.04	-	0.49	-	13,533	-	0.07	0.01	Composite	(Rosati *et al.* 2002)
NLW/EJ	**WW/EL**										
		0.16	-	0.65	-	13,533	-	0.07	0.17	Composite	(Rosati *et al.* 2002)
NLW/EJ	**NLB/EL**										
		1.00 ± 0.10	0.63 ± 0.02	-	-	8,243	72	0.04	0.08	Dorset	(Brash *et al.* 1994d)
Mean 3 joinings	Mean 3 joinings	0.32 ± 0.26	0.31 ± 0.02	-	-	1,619	130	0.10	0.19	Hyfer	(Fogarty *et al.* 1994)
		0.66 ± 0.15	0.39 ± 0.01	-	-0.35 ± 0.40	8,520	385	0.04	0.08	Merino	(Swan *et al.* 2001)
		0.42	-	-0.05	-	13,533	-	0.07	0.10	Composite	(Rosati *et al.* 2002)
NLW/EJ	**NLBA/EL**										
		0.21	-	-0.08	-	13,533	-	0.07	0.05	Composite	(Rosati *et al.* 2002)
NLW/EJ	**EL/EJ**										
		0.45 ± 0.30	0.46 ± 0.02	-	-	8,243	72	0.04	0.02	Dorset	(Brash *et al.* 1994d)
Mean 3 joinings	Mean 3 joinings	0.86 ± 0.22	0.64 ± 0.01	-	-	1,619	130	0.10	0.07	Hyfer	(Fogarty *et al.* 1994)
		0.91 ± 0.07	0.66 ± 0.01	-	0.79 ± 0.08	10,520	385	0.04	0.07	Merino	(Swan *et al.* 2001)
		0.41	-	0.27	-	22,938		0.07	0.06	Composite	(Rosati *et al.* 2002)

***Table 11. Estimates of correlations among reproduction traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	r_{pe}	Records	Sires	h_1^2	h_2^2	Breed	Reference
NLW/EJ	**Ewe rearing**										
		1.00 ± 0.80	0.68 ± 0.01	-	-	8,243	72	0.04	0.00	Dorset	(Brash *et al.* 1994d)
Mean 3 joinings	Mean 3 joinings	0.34 ± 0.44	0.61 ± 0.02	-	-	1,619	130	0.10	0.11	Hyfer	(Fogarty *et al.* 1994)
		0.76 ± 0.10	0.90 ± 0.00	-	0.99 ± 0.02	8,520	385	0.04	0.02	Merino	(Swan *et al.* 2001)
		0.28	-	0.38	-	13,533	-	0.07	0.12	Composite	(Rosati *et al.* 2002)
NLW/EJ	**Longevity**										
		-0.11 ± 0.44	0.15 ± 0.02	-	-	2,488	72	0.04	0.06	Dorset	(Brash *et al.* 1994d)
NLB/EJ	**WW/EJ**										
Mean 3 joinings	Mean 3 joinings	0.41 ± 0.20	0.57 ± 0.03	-	-	1,619	130	0.19	0.13	Hyfer	(Fogarty *et al.* 1994)
Sum 3 parities	Sum 3 parities	0.83 ± 0.09	0.79 ± 0.02	-	-	618	113	0.23	0.17	Afrino	(Snyman *et al.* 1998a)
		0.42	-	0.08	-	22,938	-	0.09	0.11	Composite	(Rosati *et al.* 2002)
		0.73 ± 0.17	0.54 ± 0.01	0.50 ± 0.02	0.88 ± 0.13	2,955	216	0.10	0.04	Merino	(Cloete *et al.* 2004)
NLB/EJ	**NLW/EL**										
		0.00	-	-0.11	-	13,533	-	0.09	0.01	Composite	(Rosati *et al.* 2002)
NLB/EJ	**WW/EL**										
	91d	0.96	0.78	-	-	1,805	205	0.06	0.03	Canadian	(Hansen and Shrestha 1999)
	91d	0.99	0.77	-	-	2,675	284	0.16	0.14	Outaouais	(Hansen and Shrestha 1999)
	91d	0.72	0.78	-	-	2,780	281	0.06	0.06	Rideau	(Hansen and Shrestha 1999)
		0.16	-	-0.03	-	13,533	-	0.09	0.17	Composite	(Rosati *et al.* 2002)
NLB/EJ	**NLB/EL**										
		0.97 ± 0.04	0.85 ± 0.06	-	-	9,195	81	0.06	0.08	Dorset	(Brash *et al.* 1994d)
		0.83 ± 0.44	0.64 ± 0.02	-	-	5,446	165	0.00	0.01	Bord Leicester	(Brash *et al.* 1994a)
		0.85 ± 0.27	0.87 ± 0.14	-	-	3,433	114	0.03	0.04	Corriedale	(Brash *et al.* 1994b)
Mean 3 joinings	Mean 3 joinings	0.96 ± 0.13	0.77 ± 0.07	-	-	1,619	130	0.19	0.31	Hyfer	(Fogarty *et al.* 1994)
		0.86	-	0.38	-	13,533	-	0.09	0.10	Composite	(Rosati *et al.* 2002)
NLB/EJ	**NLBA/EL**										
		0.81	-	0.61	-	13,533	-	0.09	0.05	Composite	(Rosati *et al.* 2002)

***Table 11. Estimates of correlations among reproduction traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	r_{pe}	Records	Sires	h_1^2	h_2^2	Breed	Reference
NLB/EJ	**EL/EJ**										
		0.61 ± 0.22	0.61 ± 0.03	-	-	10,016	81	0.06	0.02	Dorset	(Brash *et al.* 1994d)
		0.96 ± 0.18	0.81 ± 0.01	-	-	7,395	165	0.00	0.01	Bord Leicester	(Brash *et al.* 1994a)
		0.83 ± 0.24	0.72 ± 0.11	-	-	3,740	114	0.03	0.01	Corriedale	(Brash *et al.* 1994b)
Mean 3 joinings	Mean 3 joinings	0.40 ± 0.23	0.71 ± 0.06	-	-	1,619	130	0.19	0.07	Hyfer	(Fogarty *et al.* 1994)
		0.79	-	0.52	-	22,938	-	0.09	0.06	Composite	(Rosati *et al.* 2002)
NLB/EJ	**Ewe rearing**										
		1.00 ± 0.77	0.07 ± 0.02	-	-	9,950	72	0.06	0.00	Dorset	(Brash *et al.* 1994d)
		1.00 ± 0.54	-0.16 ± 0.03	-	-	3,433	114	0.03	0.00	Corriedale	(Brash *et al.* 1994b)
Mean 3 joinings	Mean 3 joinings	-0.44 ± 0.37	-0.17 ± 0.03	-	-	1,619	130	0.19	0.11	Hyfer	(Fogarty *et al.* 1994)
		-0.16	-	-0.09	-	13,533	-	0.09	0.12	Composite	(Rosati *et al.* 2002)
NLB/EJ	**Longevity**										
		-0.15 ± 0.43	0.13 ± 0.02	-	-	2,488	81	0.06	0.06	Dorset	(Brash *et al.* 1994d)
WW/EJ	**NLW/EL**										
		0.10	-	0.50	-	13,533	-	0.11	0.01	Composite	(Rosati *et al.* 2002)
WW/EJ	**WW/EL**										
		0.09	-	0.50	-	13,533	-	0.11	0.17	Composite	(Rosati *et al.* 2002)
WW/EJ	**NLB/EL**										
Mean 3 joinings	Mean 3 joinings	-0.02 ± 0.21	0.13 ± 0.02	-	-	1,619	130	0.13	0.31	Hyfer	(Fogarty *et al.* 1994)
		0.12	-	0.19	-	13,533	-	0.11	0.10	Composite	(Rosati *et al.* 2002)
WW/EJ	**NLBA/EL**										
		0.14	-	0.51	-	13,533	-	0.11	0.05	Composite	(Rosati *et al.* 2002)
WW/EJ	**EL/EJ**										
Mean 3 joinings	Mean 3 joinings	0.92 ± 0.13	0.68 ± 0.01	-	-	1,619	130	0.13	0.07	Hyfer	(Fogarty *et al.* 1994)
		0.19	-	0.55	-	22,938	-	0.11	0.06	Composite	(Rosati *et al.* 2002)
WW/EJ	**Ewe rearing**										
Mean 3 joinings	Mean 3 joinings	0.69 ± 0.34	0.64 ± 0.01	-	-	1,619	130	0.13	0.11	Hyfer	(Fogarty *et al.* 1994)
		0.04	-	0.34	-	13,533	-	0.11	0.12	Composite	(Rosati *et al.* 2002)

***Table 11. Estimates of correlations among reproduction traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	r_{pe}	Records	Sires	h_1^2	h_2^2	Breed	Reference
NLW/EL	**WW/EL**										
		0.80	-	0.95	0.96	5,140	241	0.03	0.02	Columbia	(Bromley *et al.* 2001)
		0.90	-	0.94	1.00	7,083	499	0.04	0.07	Polypay	(Bromley *et al.* 2001)
		0.99	-	0.95	0.89	5,695	418	0.05	0.10	Rambouillet	(Bromley *et al.* 2001)
		0.91	-	0.95	0.94	6,452	453	0.07	0.10	Targhee	(Bromley *et al.* 2001)
		0.16	-	0.85	-	13,533	-	0.01	0.17	Composite	(Rosati *et al.* 2002)
Sum 4 yrs	Sum 4 yrs	0.92 ± 0.04	-	-	-	818	371	0.17	0.20	Merino	(Schoeman *et al.* 2002)
Sum 4 yrs	Parity 1	0.57 ± 0.23	-	-	-	818	371	0.17	0.02	Merino	(Schoeman *et al.* 2002)
NLW/EL	**NLB/EL**										
		0.86 ± 0.10	-	-	-	3,857	-	0.09	0.16	White face	(Saboulard *et al.* 1995)
		1.00	-	0.51	0.22	5,140	241	0.03	0.07	Columbia	(Bromley *et al.* 2000)
		0.66	-	0.42	-0.99	7,095	500	0.05	0.12	Polypay	(Bromley *et al.* 2000)
		0.68	-	0.45	0.24	5,695	404	0.06	0.08	Rambouillet	(Bromley *et al.* 2000)
		0.58	-	0.46	-0.53	6,452	453	0.07	0.11	Targhee	(Bromley *et al.* 2000)
		0.13	-	-0.18	-	13,533	-	0.01	0.10	Composite	(Rosati *et al.* 2002)
Sum 4 yrs	Sum 4 yrs	0.62 ± 0.16	-	-	-	818	371	0.17	0.23	Merino	(Schoeman *et al.* 2002)
NLW/EL	**NLBA/EL**										
		0.52	-	0.12	-	13,533	-	0.01	0.05	Composite	(Rosati *et al.* 2002)
NLW/EL	**EL/EJ**										
		0.42	-	0.27	-	13,533	-	0.01	0.06	Composite	(Rosati *et al.* 2002)
NLW/EL	**Ewe rearing**										
		0.31 ± 0.28	-	-	-	3,857	-	0.09	0.06	White face	(Saboulard *et al.* 1995)
		0.71	-	0.42	-	13,533	-	0.01	0.12	Composite	(Rosati *et al.* 2002)
WW/EL	**NLB/EL**										
91d		0.92	0.52	-	-	1,850	205	0.03	0.10	Canadian	(Hansen and Shrestha 1999)
91d		1.09	0.49	-	-	2,675	284	0.14	0.23	Outaouais	(Hansen and Shrestha 1999)
91d		0.50	0.55	-	-	2,780	281	0.06	0.13	Rideau	(Hansen and Shrestha 1999)
		-0.77 ± 0.04	-0.53	-0.50 ±0.01	0.58 ± 0.27	5,343	596	0.16	0.15	Chios	(Ligda *et al.* 2000a)
		0.65	-	0.41	0.14	5,140	241	0.02	0.07	Columbia	(Bromley *et al.* 2001)
		0.42	-	0.33	-0.81	7,083	499	0.07	0.12	Polypay	(Bromley *et al.* 2001)

***Table 11. Estimates of correlations among reproduction traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	r_{pe}	Records	Sires	h_1^2	h_2^2	Breed	Reference
		0.62	-	0.36	-0.65	5,695	418	0.10	0.09	Rambouillet	(Bromley *et al.* 2001)
		0.55	-	0.36	-1.00	6,452	453	0.10	0.10	Targhee	(Bromley *et al.* 2001)
		-0.05 ± 0.10	0.01 ± 0.02	-	-	3,445	189	0.20	0.15	Welsh Mountn	(Ap Dewi *et al.* 2002)
		0.18	-	0.02	-	13,533	-	0.17	0.10	Composite	(Rosati *et al.* 2002)
Sum 4 yrs	Sum 4 yrs	0.61 ± 0.17	-	-	-	818	371	0.20	0.23	Merino	(Schoeman *et al.* 2002)
Parity 1	Sum 4 yrs	-0.10 ± 0.24	-	-	-	818	371	0.02	0.23	Merino	(Schoeman *et al.* 2002)
WW/EL	**NLBA/EL**										
		0.51	-	-0.24	-	13,533	-	0.17	0.05	Composite	(Rosati *et al.* 2002)
WW/EL	**EL/EJ**										
		0.32	-	0.31	-	13,533	-	0.17	0.06	Composite	(Rosati *et al.* 2002)
WW/EL	**Ewe rearing**										
		0.14	-	0.92	-	13,533	-	0.17	0.12	Composite	(Rosati *et al.* 2002)
NLB/EL	**NLBA/EL**										
		0.91	-	0.85	-	13,533	-	0.10	0.05	Composite	(Rosati *et al.* 2002)
NLB/EL	**EL/EJ**										
		0.35 ± 0.27	0.03 ± 0.03	-	-	9,195	81	0.08	0.02	Dorset	(Brash *et al.* 1994d)
		0.65 ± 0.52	0.07 ± 0.03	-	-	5,446	165	0.01	0.01	Bord Leicester	(Brash *et al.* 1994a)
		0.34 ± 0.36	0.05 ± 0.06	-	-	3,433	114	0.04	0.01	Corriedale	(Brash *et al.* 1994b)
Mean 3 joinings	Mean 3 joinings	0.02 ± 0.27	-0.01 ± 0.03	-	-	1,619	130	0.31	0.07	Hyfer	(Fogarty *et al.* 1994)
Fall	Spring	0.56	-	-	-	447	52	0.05	0.09	Composite	(Al-Shorepy and Notter 1996)
		0.30 ± 0.14	0.00 ± 0.02		-0.69 ±0.43	8,520	385	0.08	0.07	Merino	(Swan *et al.* 2001)
		0.71	-	0.80	-	13,533	-	0.10	0.06	Composite	(Rosati *et al.* 2002)
NLB/EL	**Ewe rearing**										
		1.00 ± 0.80	0.03 ± 0.02	-	-	9,950	72	0.08	0.00	Dorset	(Brash *et al.* 1994d)
		0.09 ± 0.33	-0.19 ± 0.04	-	-	3,433	114	0.04	0.00	Corriedale	(Brash *et al.* 1994b)
Mean 3 joinings	Mean 3 joinings	-0.73 ± 0.20	-0.29 ± 0.02	-	-	1,619	130	0.31	0.11	Hyfer	(Fogarty *et al.* 1994)
		-0.27 ± 0.27	-	-	-	3,857	-	0.16	0.06	White face	(Saboulard *et al.* 1995)
		-0.37 ± 0.24	-0.13 ± 0.01	-	-0.47 ±0.24	8,520	385	0.08	0.02	Merino	(Swan *et al.* 2001)
		-0.15	-	0.04	-	13,533	-	0.10	0.12	Composite	(Rosati *et al.* 2002)

***Table 11. Estimates of correlations among reproduction traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	r_{pe}	Records	Sires	h_1^2	h_2^2	Breed	Reference
NLB/EL	**Scrotal circ**										
Fall	90d	0.36	-	-	-	318	48	0.05	0.26	Composite	(Al-Shorepy and Notter 1996)
NLB/EL	**Longevity**										
		-0.23 ± 0.40	0.07 ± 0.02	-	-	2,488	81	0.08	0.06	Dorset	(Brash *et al.* 1994d)
NLBA/EL	**EL/EJ**										
		0.65	-	0.81	-	13,533	-	0.05	0.06	Composite	(Rosati *et al.* 2002)
NLBA/EL	**Ewe rearing**										
		-0.08	-	-0.42	-	13,533	-	0.05	0.12	Composite	(Rosati *et al.* 2002)
EL/EJ	**Ewe rearing**										
		1.00 ± 0.91	0.06 ± 0.02	-	-	9,950	72	0.02	0.00	Dorset	(Brash *et al.* 1994d)
		1.00 ± 0.46	0.01 ± 0.02	-	-	3,433	114	0.01	0.00	Corriedale	(Brash *et al.* 1994b)
Mean 3 joinings	Mean 3 joinings	0.60 ± 0.40	0.13 ± 0.02	-	-	1,619	130	0.07	0.11	Hyfer	(Fogarty *et al.* 1994)
		-0.20 ± 0.27	0.02 ± 0.02	-	0.63 ± 0.18	8,520	385	0.07	0.02	Merino	(Swan *et al.* 2001)
		0.08	-	-0.01	-	13,533	-	0.06	0.12	Composite	(Rosati *et al.* 2002)
EL/EJ	**Scrotal circum**										
Spring	90d	0.29	-	-	-	318	48	0.09	0.26	Composite	(Al-Shorepy and Notter 1996)
EL/EJ	**Longevity**										
		0.29 ± 0.48	0.13 ± 0.02	-	-	2,488	81	0.02	0.06	Dorset	(Brash *et al.* 1994d)
Ewe rearing	**Longevity**										
		-1.00 ± 0.76	0.11 ± 0.03	-	-	2,488	72	0.00	0.06	Dorset	(Brash *et al.* 1994d)

NLW = Number of lambs weaned; NLB = Number of lambs born; WW = Litter weight of lamb weaned; NLBA = Number of lambs born alive; /EJ = per ewe joined; /EL = per ewe lambing; Ewe rearing = Lamb rearing ability of the ewe (NLW/NLB); EL/EJ = Ewe fertility; NLB/EL = Litter size

Table 12. Estimates of correlations between liveweight and wool traits

Estimates of genetic ($r_g \pm$ s.e.) and phenotypic ($r_p \pm$ s.e.) correlations for traits 1 and 2, numbers of records and sires, heritability (h_i^2), breed and reference

Trait 1	Trait 2	r_g	r_p ($^1 r_e$)	Records	Sires	h_1^2	h_2^2	Breed	Reference
Liveweight	**Wool weight - greasy**								
14m	15m	-0.21 ± 0.30	0.54 ± 0.02	1,294	75	0.24	0.17	Border Leicester	(Brash *et al.* 1994a)
4m	12m	0.16 ± 0.15	0.32 ± 0.02	2,909	64	0.34	0.32	Corriedale	(Brash *et al.* 1994b)
12m	12m	0.34 ± 0.16	0.35 ± 0.02	2,795	64	0.13	0.32	Corriedale	(Brash *et al.* 1994b)
4m	12m	0.40 ± 0.11	0.24 ± 0.02	4,044	84	0.45	0.28	Coopworth	(Brash *et al.* 1994c)
12m	12m	0.15 ± 0.13	0.40 ± 0.02	4,044	84	0.38	0.28	Coopworth	(Brash *et al.* 1994c)
15m	15m	0.35 ± 0.13	0.36 ± 0.02	1,581	130	0.44	0.38	Hyfer	(Fogarty *et al.* 1994)
Birth - female	14m - female	0.25 ± 0.18	0.18 ± 0.02	2,106	204	0.32	0.30	Merino	(Lewer *et al.* 1994)
Birth - male	14m - male	0.20 ± 0.22	0.19 ± 0.03	1,514	179	0.16	0.42	Merino	(Lewer *et al.* 1994)
3m - female	14m - female	0.29 ± 0.16	0.33 ± 0.02	2,106	204	0.37	0.30	Merino	(Lewer *et al.* 1994)
3m - male	14m - male	0.30 ± 0.19	0.30 ± 0.03	1,514	179	0.39	0.42	Merino	(Lewer *et al.* 1994)
8m - female	14m - female	0.30 ± 0.16	0.39 ± 0.02	2,106	204	0.34	0.30	Merino	(Lewer *et al.* 1994)
8m - male	14m - male	0.24 ± 0.20	0.36 ± 0.03	1,231	150	0.25	0.42	Merino	(Lewer *et al.* 1994)
11m - female	14m - female	0.36 ± 0.14	0.39 ± 0.02	2,106	204	0.43	0.30	Merino	(Lewer *et al.* 1994)
11m - male	14m - male	0.11 ± 0.20	0.43 ± 0.02	1,510	180	0.27	0.42	Merino	(Lewer *et al.* 1994)
14m - female	14m - female	0.41 ± 0.14	0.46 ± 0.02	2,106	204	0.48	0.30	Merino	(Lewer *et al.* 1994)
14m - male	14m - male	0.07 ± 0.21	0.44 ± 0.02	1,510	180	0.27	0.42	Merino	(Lewer *et al.* 1994)
10m	10m	0.65 ± 0.11	0.40 ± 0.03	1,278	68	0.45	0.40	Merino	(Brash *et al.* 1997)
16m	16m	0.30 ± 0.19	0.28 ± 0.03	1,172	68	0.33	0.28	Merino	(Brash *et al.* 1997)
120d	12m	0.50*	-	1,237	19	0.10	0.32	Targhee	(Notter and Hough 1997)
4m	12m	0.15 ± 0.17	0.34 ± 0.02	2,987	114	0.19	0.33	Romney	(Wuliji *et al.* 1998)
12m	12m	0.54 ± 0.06	0.60 ± 0.02	2,987	114	0.49	0.33	Romney	(Wuliji *et al.* 1998)
1yr	Adult	0.29 ± 0.04	-	27,458	1,332	0.13	0.12	Merino	(Nagy *et al.* 1999)
15m	15m	0.16 ± 0.20	0.31 ± 0.03	900	54	0.37	0.35	Merino	(Rose and Pepper 1999)
15m	15m	0.53 ± 0.19	0.28 ± 0.04	900	54	0.56	0.23	Merino	(Rose and Pepper 1999)
ADG 0 - 120d	Adult	0.22	0.30 [1]	7,750	263	0.07	0.44	Columbia	(Bromley *et al.* 2000)
ADG 0 - 120d	Adult	0.04	0.21 [1]	9,524	246	0.22	0.54	Polypay	(Bromley *et al.* 2000)
ADG 0 - 120d	Adult	0.44	0.20 [1]	9,530	451	0.15	0.53	Rambouillet	(Bromley *et al.* 2000)
ADG 0 - 120d	Adult	0.21	0.21 [1]	9,321	492	0.16	0.51	Targhee	(Bromley *et al.* 2000)
Birth wt	10m	0.13 ± 0.19	0.34 ± 0.03	1,801	70	0.35	0.24	Merino	(Wuliji *et al.* 2001)
Wean wt	10m	0.08 ± 0.18	0.48 ± 0.02	1,801	70	0.34	0.24	Merino	(Wuliji *et al.* 2001)
6m	10m	0.09 ± 0.18	0.48 ± 0.02	1,801	70	0.44	0.24	Merino	(Wuliji *et al.* 2001)

Table 12. Estimates of correlations between liveweight and wool traits -*Continued*

Trait 1	Trait 2	r_g	r_p ($^1 r_e$)	Records	Sires	h_1^2	h_2^2	Breed	Reference
12m	10m	0.13 ± 0.18	0.49 ± 0.02	1,801	70	0.43	0.24	Merino	(Wuliji *et al.* 2001)
16m	10m	0.02 ± 0.21	0.37 ± 0.03	1,801	70	0.49	0.24	Merino	(Wuliji *et al.* 2001)
12m	12m	0.67	0.48	556	-	0.56	0.30	Merino	(Brown *et al.* 2002b)
18m	18m	-0.07	0.18	9,767	-	0.40	0.35	Merino	(Brown *et al.* 2002b)
16m	16m	0.29 ± 0.04	0.37 ± 0.02[1]	9,435	442	0.52	0.44	Merino	(Cloete *et al.* 2002a)
Birth wt	Adult	0.21	-	7,974	911	0.26	0.53	Columbia	(Hanford *et al.* 2002)
4m	Adult	0.18	-	7,974	911	0.15	0.53	Columbia	(Hanford *et al.* 2002)
Adult	Adult	0.39 ± 0.05	0.45 ± 0.03	2,872	216	0.49	0.53	Merino	(Cloete *et al.* 2004)
Liveweight	**Wool weight - clean**								
4m	12m	0.13 ± 0.16	0.29 ± 0.02	2,798	63	0.34	0.29	Corriedale	(Brash *et al.* 1994b)
12m	12m	0.15 ± 0.19	0.30 ± 0.02	2,795	63	0.13	0.29	Corriedale	(Brash *et al.* 1994b)
Birth - female	14m - female	0.13 ± 0.20	0.18 ± 0.02	2,106	204	0.32	0.27	Merino	(Lewer *et al.* 1994)
Birth - male	14m - male	0.06 ± 0.23	0.21 ± 0.03	1,514	179	0.16	0.44	Merino	(Lewer *et al.* 1994)
3m - female	14m - female	0.34 ± 0.16	0.32 ± 0.02	2,106	204	0.37	0.27	Merino	(Lewer *et al.* 1994)
3m - male	14m - male	0.22 ± 0.19	0.27 ± 0.03	1,514	179	0.39	0.44	Merino	(Lewer *et al.* 1994)
8m - female	14m - female	0.24 ± 0.17	0.38 ± 0.02	2,106	204	0.34	0.27	Merino	(Lewer *et al.* 1994)
8m - male	14m - male	0.25 ± 0.21	0.33 ± 0.03	1,231	150	0.25	0.44	Merino	(Lewer *et al.* 1994)
11m - female	14m - female	0.25 ± 0.16	0.38 ± 0.02	2,106	204	0.43	0.27	Merino	(Lewer *et al.* 1994)
11m - male	14m - male	0.24 ± 0.18	0.40 ± 0.02	1,510	180	0.27	0.44	Merino	(Lewer *et al.* 1994)
14m - female	14m - female	0.29 ± 0.15	0.43 ± 0.02	2,106	204	0.48	0.27	Merino	(Lewer *et al.* 1994)
14m - male	14m - male	0.14 ± 0.20	0.42 ± 0.02	1,510	180	0.27	0.44	Merino	(Lewer *et al.* 1994)
10m	10m	0.58 ± 0.12	0.35 ± 0.03	1,278	68	0.45	0.39	Merino	(Brash *et al.* 1997)
16m	16m	0.20 ± 0.18	0.24 ± 0.03	1,172	68	0.33	0.34	Merino	(Brash *et al.* 1997)
9m	9m	0.27	0.44	5,100	196	0.48	0.29	Merino	(Purvis and Swan 1997)
18m	16m	0.37 ± 0.03	0.49 ± 0.01	6,922	631	0.57	0.33	Merino	(Cloete *et al.* 1998)
3m	15m	0.41	0.44	3,658	89	0.34	0.38	Merino	(Greeff and Karlsson 1998)
15m	15m	0.44	0.48	3,658	89	0.40	0.38	Merino	(Greeff and Karlsson 1998)
4m	16m	0.04 ± 0.06	0.15 ± 0.02	3,748	-	0.41	0.62	Afrino	(Snyman *et al.* 1998a)
9m	16m	-0.01 ± 0.04	0.14 ± 0.02	3,748	-	0.63	0.62	Afrino	(Snyman *et al.* 1998a)
18m	16m	-0.09 ± 0.06	0.10 ± 0.02	3,748	-	0.60	0.62	Afrino	(Snyman *et al.* 1998a)
4m	12m	0.19 ± 0.16	0.34 ± 0.02	2,987	114	0.19	0.34	Romney	(Wuliji *et al.* 1998)
12m	12m	0.50 ± 0.07	0.57 ± 0.02	2,987	114	0.49	0.34	Romney	(Wuliji *et al.* 1998)
16m	16m	0.22 ± 0.09	0.37 ± 0.02	3,665	165	0.32	0.35	Merino	(Greeff and Karlsson 1999)
15m	15m	-0.06 ± 0.21	0.29 ± 0.03	900	54	0.37	0.34	Merino	(Rose and Pepper 1999)

Table 12. Estimates of correlations between liveweight and wool traits -*Continued*

Trait 1	Trait 2	r_g	r_p ($^1 r_e$)	Records	Sires	h_1^2	h_2^2	Breed	Reference
15m	15m	0.20 ± 0.20	0.21 ± 0.04	900	54	0.56	0.20	Merino	(Rose and Pepper 1999)
Birth wt	10m	0.18 ± 0.18	0.34 ± 0.03	1,785	70	0.35	0.28	Merino	(Wuliji *et al.* 2001)
Wean wt	10m	0.13 ± 0.17	0.47 ± 0.02	1,785	70	0.34	0.28	Merino	(Wuliji *et al.* 2001)
6m	10m	0.12 ± 0.17	0.47 ± 0.02	1,785	70	0.44	0.28	Merino	(Wuliji *et al.* 2001)
12mt	10m	0.09 ± 0.17	0.46 ± 0.02	1,785	70	0.43	0.28	Merino	(Wuliji *et al.* 2001)
16m	10m	-0.01 ± 0.20	0.35 ± 0.03	1,785	70	0.49	0.28	Merino	(Wuliji *et al.* 2001)
16m	16m	0.28 ± 0.04	0.37 ± 0.02 [1]	9,389	442	0.52	0.42	Merino	(Cloete *et al.* 2002a)
8 - 15m	15m	0.20 ± 0.16	0.44 ± 0.02	1,729	100	0.38	0.37	Merino	(Lee *et al.* 2002)
21 - 32m	27m	0.28 ± 0.16	0.29 ± 0.03	1,292	150	0.34	0.52	Merino	(Lee *et al.* 2002)
Liveweight	**Fibre diameter**								
4m	12m	-0.02 ± 0.13	0.08 ± 0.02	2,808	63	0.34	0.56	Corriedale	(Brash *et al.* 1994b)
4m	16m	-0.19 ± 0.28	-0.02 ± 0.04	1,009	54	0.34	0.62	Corriedale	(Brash *et al.* 1994b)
12m	12m	-0.02 ± 0.16	0.10 ± 0.02	2,795	63	0.13	0.56	Corriedale	(Brash *et al.* 1994b)
12m	16m	-0.32 ± 0.36	0.01 ± 0.04	1,009	54	0.13	0.62	Corriedale	(Brash *et al.* 1994b)
4m	12m	0.06 ± 0.26	0.09 ± 0.03	966	28	0.45	0.18	Coopworth	(Brash *et al.* 1994c)
12m	12m	-0.20 ± 0.24	0.04 ± 0.03	966	28	0.38	0.18	Coopworth	(Brash *et al.* 1994c)
Birth - female	14m - female	0.06 ± 0.17	-0.04 ± 0.02	2,106	204	0.32	0.59	Merino	(Lewer *et al.* 1994)
Birth - male	14m - male	0.29 ± 0.21	-0.07 ± 0.03	1,514	179	0.16	0.58	Merino	(Lewer *et al.* 1994)
3m - female	14m - female	0.00 ± 0.16	0.05 ± 0.02	2,106	204	0.37	0.59	Merino	(Lewer *et al.* 1994)
3m - male	14m - male	0.35 ± 0.18	0.08 ± 0.03	1,514	179	0.39	0.58	Merino	(Lewer *et al.* 1994)
8m - female	14m - female	0.02 ± 0.16	0.12 ± 0.03	2,106	204	0.34	0.59	Merino	(Lewer *et al.* 1994)
8m - male	14m - male	0.69 ± 0.17	0.18 ± 0.03	1,231	150	0.25	0.58	Merino	(Lewer *et al.* 1994)
11m - female	14m - female	0.03 ± 0.15	0.14 ± 0.03	2,106	204	0.43	0.59	Merino	(Lewer *et al.* 1994)
11m - male	14m - male	0.58 ± 0.14	0.21 ± 0.03	1,510	180	0.27	0.58	Merino	(Lewer *et al.* 1994)
14m - female	14m - female	0.02 ± 0.15	0.17 ± 0.03	2,106	204	0.48	0.59	Merino	(Lewer *et al.* 1994)
14m - male	14m - male	0.58 ± 0.15	0.22 ± 0.03	1,510	180	0.27	0.58	Merino	(Lewer *et al.* 1994)
10m	10m	0.36 ± 0.13	0.26 ± 0.03	1,278	68	0.45	0.58	Merino	(Brash *et al.* 1997)
16m	16m	0.13 ± 0.17	0.12 ± 0.03	1,172	68	0.33	0.55	Merino	(Brash *et al.* 1997)
120d	12m	0.01	-	1,237	19	0.10	0.58	Targhee	(Notter and Hough 1997)
9m	9m	0.18	0.22	5,100	196	0.48	0.68	Merino	(Purvis and Swan 1997)
18m	16m	0.26 ± 0.02	0.21 ± 0.02	6,922	631	0.57	0.63	Merino	(Cloete *et al.* 1998)
3m	15m	0.06	0.03	3,696	89	0.34	0.43	Merino	(Greeff and Karlsson 1998)
15m	15m	0.06	0.17	3,664	89	0.40	0.43	Merino	(Greeff and Karlsson 1998)
4m	16m	-0.10 ± 0.06	-0.02 ± 0.02	3,748	-	0.41	0.73	Afrino	(Snyman *et al.* 1998a)

Table 12. Estimates of correlations between liveweight and wool traits -*Continued*

Trait 1	Trait 2	r_g	r_p ($^1 r_e$)	Records	Sires	h_1^2	h_2^2	Breed	Reference
9m	16m	-0.05 ± 0.03	0.02 ± 0.02	3,748	-	0.63	0.73	Afrino	(Snyman *et al.* 1998a)
18m	16m	-0.04 ± 0.05	0.04 ± 0.02	3,748	-	0.60	0.73	Afrino	(Snyman *et al.* 1998a)
16m	16m	0.14 ± 0.08	0.16 ± 0.02	3,665	165	0.32	0.57	Merino	(Greeff and Karlsson 1999)
4m	12m	0.23 ± 0.17	0.14 ± 0.02	2,987	114	0.19	0.55	Romney	(Wuliji *et al.* 1998)
12m	12m	0.27 ± 0.08	0.34 ± 0.02	2,987	114	0.49	0.55	Romney	(Wuliji *et al.* 1998)
1yr	Adult	0.16 ± 0.04	-	25,990	1,096	0.13	0.19	Merino	(Nagy *et al.* 1999)
15m	15m	0.25 ± 0.17	0.08 ± 0.03	900	54	0.37	0.74	Merino	(Rose and Pepper 1999)
15m	15m	0.01 ± 0.22	0.03 ± 0.05	900	54	0.56	0.67	Merino	(Rose and Pepper 1999)
12m	12m	0.61	0.24	556	-	0.56	0.73	Merino	(Brown *et al.* 2002b)
18m	18m	0.05	0.09	9,767	-	0.40	0.66	Merino	(Brown *et al.* 2002b)
16m	16m	0.17 ± 0.04	0.17 ± 0.04[1]	9,458	442	0.52	0.71	Merino	(Cloete *et al.* 2002a)
8-15m	15m	0.31 ± 0.14	0.17 ± 0.03	1,729	100	0.38	0.62	Merino	(Lee *et al.* 2002)
21 - 32m	27m	0.06 ± 0.16	0.07 ± 0.03	1,292	150	0.34	0.72	Merino	(Lee *et al.* 2002)
Liveweight	**Yield**								
4m	12m	-0.07 ± 0.17	0.00 ± 0.03	2,799	63	0.34	0.53	Corriedale	(Brash *et al.* 1994b)
12m	12m	-0.31 ± 0.18	-0.05 ± 0.02	1,009	54	0.13	0.53	Corriedale	(Brash *et al.* 1994b)
Birth - female	14m - female	-0.25 ± 0.18	0.04 ± 0.02	2,106	204	0.32	0.47	Merino	(Lewer *et al.* 1994)
Birth - male	14m - male	-0.26 ± 0.22	0.06 ± 0.03	1,514	179	0.16	0.46	Merino	(Lewer *et al.* 1994)
3m - female	14m - female	0.05 ± 0.17	0.02 ± 0.02	2,106	204	0.37	0.47	Merino	(Lewer *et al.* 1994)
3m - male	14m - male	-0.14 ± 0.20	-0.02 ± 0.03	1,514	179	0.39	0.46	Merino	(Lewer *et al.* 1994)
8m - female	14m - female	-0.16 ± 0.17	0.03 ± 0.03	2,106	204	0.34	0.47	Merino	(Lewer *et al.* 1994)
8m - male	14m - male	-0.01 ± 0.22	-0.03 ± 0.03	1,231	150	0.25	0.46	Merino	(Lewer *et al.* 1994)
11m - female	14m - female	-0.23 ± 0.16	0.01 ± 0.03	2,106	204	0.43	0.47	Merino	(Lewer *et al.* 1994)
11m - male	14m - male	0.24 ± 0.19	0.02 ± 0.03	1,510	180	0.27	0.46	Merino	(Lewer *et al.* 1994)
14m - female	14m - female	-0.27 ± 0.15	0.00 ± 0.03	2,106	204	0.48	0.47	Merino	(Lewer *et al.* 1994)
14m - male	14m - male	0.10 ± 0.20	0.02 ± 0.03	1,510	180	0.27	0.46	Merino	(Lewer *et al.* 1994)
10m	10m	-0.14 ± 0.16	-0.05 ± 0.03	1,278	68	0.45	0.41	Merino	(Brash *et al.* 1997)
16m	16m	-0.18 ± 0.19	-0.00 ± 0.03	1,172	68	0.33	0.34	Merino	(Brash *et al.* 1997)
18m	16m	0.16 ± 0.02	0.02 ± 0.02	6,922	631	0.57	0.69	Merino	(Cloete *et al.* 1998)
4m	12m	-0.13 ± 0.16	0.00 ± 0.02	2,987	114	0.19	0.39	Romney	(Wuliji *et al.* 1998)
12m	12m	-0.17 ± 0.09	-0.05 ± 0.02	2,987	114	0.49	0.39	Romney	(Wuliji *et al.* 1998)
15m	15m	-0.25 ± 0.18	0.04 ± 0.03	900	54	0.37	0.62	Merino	(Rose and Pepper 1999)
15m	15m	0.28 ± 0.21	-0.04 ± 0.04	900	54	0.56	0.52	Merino	(Rose and Pepper 1999)
16m	16m	0.02 ± 0.04	0.03 ± 0.03 [1]	9,409	442	0.52	0.63	Merino	(Cloete *et al.* 2002a)

Table 12. Estimates of correlations between liveweight and wool traits -*Continued*

Trait 1	Trait 2	r_g	r_p ([1] r_e)	Records	Sires	h_1^2	h_2^2	Breed	Reference
Liveweight	**CV Fibre Diam**								
10m	10m	-0.15 ± 0.15	-0.09 ± 0.03	1,278	68	0.45	0.54	Merino	(Brash *et al.* 1997)
16m	16m	-0.25 ± 0.18	-0.13 ± 0.03	1,172	68	0.33	0.41	Merino	(Brash *et al.* 1997)
9m	9m	-0.23	-0.19	5,100	196	0.48	0.55	Merino	(Purvis and Swan 1997)
3m	15m	0.02	0.05	3,696	89	0.34	0.43	Merino	(Greeff and Karlsson 1998)
15m	15m	-0.01	0.09	3,664	89	0.40	0.43	Merino	(Greeff and Karlsson 1998)
16m	16m	-0.08 ± 0.09	-0.17 ± 0.02	3,665	165	0.32	0.54	Merino	(Greeff and Karlsson 1999)
12m	12m	-0.24	-0.27	472	-	0.56	0.31	Merino	(Brown *et al.* 2002b)
18m	18m	-0.21	-0.13	9,767	-	0.40	0.37	Merino	(Brown *et al.* 2002b)
16m	16m	-0.17 ± 0.05	0.01 ± 0.04 [1]	5,624	442	0.52	0.62	Merino	(Cloete *et al.* 2002a)
8-15m	15m	-0.06 ± 0.18	-0.13 ± 0.03	1,729	100	0.38	0.25	Merino	(Lee *et al.* 2002)
21-32m	27m	0.26 ± 0.24	-0.03 ± 0.03	1,292	150	0.34	0.23	Merino	(Lee *et al.* 2002)
Liveweight	**Staple length**								
9m	9m	0.12	0.18	5,100	196	0.48	0.44	Merino	(Purvis and Swan 1997)
3m	15m	0.04	0.04	3,696	89	0.34	0.43	Merino	(Greeff and Karlsson 1998)
15m	15m	0.00	0.17	3,664	89	0.40	0.43	Merino	(Greeff and Karlsson 1998)
18m	16m	0.38 ± 0.03	0.21 ± 0.02	6,922	631	0.57	0.36	Merino	(Cloete *et al.* 1998)
WW 4m	12m	0.15 ± 0.24	0.05 ± 0.03	2,987	114	0.19	0.40	Romney	(Wuliji *et al.* 1998)
12m	12m	0.16 ± 0.11	0.21 ± 0.03	2,987	114	0.49	0.40	Romney	(Wuliji *et al.* 1998)
1yr	Adult	0.03 ± 0.04	-	25,990	1,096	0.13	0.17	Merino	(Nagy *et al.* 1999)
ADG 0-120d	Adult	0.21	-	4,603	263	0.08	0.41	Columbia	(Bromley *et al.* 2000)
ADG 0-120d	Adult	0.27	-	9,524	246	0.21	0.53	Polypay	(Bromley *et al.* 2000)
ADG 0-120d	Adult	0.36	-	7,080	451	0.11	0.36	Rambouillet	(Bromley *et al.* 2000)
ADG 0-120d	Adult	0.19	-	5,534	492	0.19	0.54	Targhee	(Bromley *et al.* 2000)
12m	12m	0.58	0.39	371	-	0.56	0.74	Merino	(Brown *et al.* 2002b)
18m	18m	-0.38	0.02	2,179	-	0.40	0.57	Merino	(Brown *et al.* 2002b)
Birth wt	Adult	0.05	-	2,449	226	0.27	0.55	Columbia	(Hanford *et al.* 2002)
Wean 4m	Adult	-0.04	-	2,449	226	0.16	0.54	Columbia	(Hanford *et al.* 2002)

Table 12. Estimates of correlations between liveweight and wool traits -*Continued*

Trait 1	Trait 2	r_g	r_p ($^1 r_e$)	Records	Sires	h_1^2	h_2^2	Breed	Reference
Liveweight	**Staple strength**								
3m	15m	-0.12	-0.01	3,696	89	0.34	0.43	Merino	(Greeff and Karlsson 1998)
15m	15m	-0.12	0.03	3,664	89	0.40	0.43	Merino	(Greeff and Karlsson 1998)
Wean 4m	12m	0.49 ± 0.17	0.12 ± 0.03	2,987	114	0.19	0.30	Romney	(Wuliji *et al.* 1998)
12m	12m	0.30 ± 0.11	0.22 ± 0.03	2,987	114	0.49	0.30	Romney	(Wuliji *et al.* 1998)
16m	16m	-0.10 ± 0.09	0.05 ± 0.02	3,665	165	0.32	0.36	Merino	(Greeff and Karlsson 1999)

Table 13. Estimates of correlations between wool and carcass traits

Estimates of genetic ($r_g \pm$ s.e.) and phenotypic ($r_p \pm$ s.e.) correlations for traits 1 and 2, numbers of records and sires, heritability (h_i^2), breed and reference

Trait 1	Trait 2	r_g	r_p	Records	Sires	h_1^2	h_2^2	Breed	Reference
Wool weight	**Fat**								
GFW 12m	C live 12m	0.15 ± 0.34	0.14 ± 0.03	2,184	50	0.28	0.13	Coopworth	(Brash *et al.* 1994c)
CFW 15m	C live 12m	-0.29 ± 0.81	0.27 ± 0.03	1,729	100	0.37	0.06	Merino	(Lee *et al.* 2002)
CFW 27m	C live 28m	-0.16 ± 0.21	-0.03 ± 0.03	1,292	150	0.52	0.22	Merino	(Lee *et al.* 2002)
CFW 12m	GR 17m	-0.34 ± 0.16	-0.06 ± 0.03	1,045	125	-	0.33	Merino	(Fogarty *et al.* 2003)
CFW 16m	GR 16m	0.09± 0.19	-	829	63	0.38	0.38	Merino	(Greeff *et al.* 2003)
CFW 16m	C 16m	-0.01 ± 0.22	-	829	63	0.38	0.28	Merino	(Greeff *et al.* 2003)
Wool weight	**Muscle**								
CFW 15m	EMD	0.11 ± 0.18	0.02 ± 0.03	1,045	125	-	0.29	Merino	(Fogarty *et al.* 2003)
CFW 16m	EMD	0.35 ± 0.19	-	829	63	0.38	0.31	Merino	(Greeff *et al.* 2003)
CFW 16m	EMA	0.13 ± 0.02	-	829	63	0.38	0.33	Merino	(Greeff *et al.* 2003)
Wool weight	**Meat quality**								
CFW 15m	pH	0.27 ± 0.18	0.03 ± 0.03	957	125	-	0.30	Merino	(Fogarty *et al.* 2003)
CFW 15m	Colour *L**	-0.12 ± 0.25	-0.01 ± 0.03	1,035	125	-	0.15	Merino	(Fogarty *et al.* 2003)
CFW 16m	pH	-0.20 ± 0.32	-	829	63	0.38	0.08	Merino	(Greeff *et al.* 2003)
CFW 16m	Colour *L**	0.38 ± 0.21	-	829	63	0.38	0.19	Merino	(Greeff *et al.* 2003)
Fibre diameter	**Fat**								
12m	C live 12m	-0.55 ± 0.28	-0.00 ± 0.03	966	28	0.18	0.13	Coopworth	(Brash *et al.* 1994c)
15m	C live 12m	1.14 ± 0.50	0.17 ± 0.04	1,729	100	0.62	0.06	Merino	(Lee *et al.* 2002)
27m	C live 28m	0.37 ± 0.19	0.05 ± 0.03	1,292	150	0.72	0.22	Merino	(Lee *et al.* 2002)
15m	GR	0.16 ± 0.17	0.06 ± 0.03	1,045	125	-	0.33	Merino	(Fogarty *et al.* 2003)
16m	GR	0.15 ± 0.21	-	829	63	0.59	0.38	Merino	(Greeff *et al.* 2003)
16m	C	0.04 ± 0.24	-	829	63	0.59	0.28	Merino	(Greeff *et al.* 2003)
Fibre diameter	**Muscle**								
15m	EMD	0.05 ± 0.18	0.06 ± 0.03	1,045	125	-	0.29	Merino	(Fogarty *et al.* 2003)
16m	EMD	0.10 ± 0.25	-	829	63	0.59	0.31	Merino	(Greeff *et al.* 2003)
16m	EMA	-0.12 ± 0.23	-	829	63	0.59	0.33	Merino	(Greeff *et al.* 2003)

***Table 13. Estimates of correlations between wool and carcass traits** - Continued*

Trait 1	Trait 2	r_g	r_p	Records	Sires	h_1^2	h_2^2	Breed	Reference
Fibre diameter	**Meat quality**								
15m	pH	0.16 ± 0.18	0.01 ± 0.03	957	125	-	0.30	Merino	(Fogarty *et al*. 2003)
15m	Colour *L**	-0.66 ± 0.27	-0.06 ± 0.03	1,035	125	-	0.15	Merino	(Fogarty *et al*. 2003)
16m	pH	-0.78 ± 0.34	-	829	63	0.59	0.08	Merino	(Greeff *et al*. 2003)
16m	Colour *L**	0.60 ± 0.23	-	829	63	0.59	0.19	Merino	(Greeff *et al*. 2003)
Other wool	**Carcass/meat**								
Staple strength	GR	0.52 ± 0.18	-	829	63	0.39	0.38	Merino	(Greeff *et al*. 2003)
Staple strength	C	0.21 ± 0.23	-	829	63	0.39	0.28	Merino	(Greeff *et al*. 2003)
Staple strength	EMD	0.19 ± 0.24	-	829	63	0.39	0.31	Merino	(Greeff *et al*. 2003)
Staple strength	EMA	0.02 ± 0.22	-	829	63	0.39	0.33	Merino	(Greeff *et al*. 2003)
Staple strength	pH	0.31 ± 0.34	-	829	63	0.39	0.08	Merino	(Greeff *et al*. 2003)
Staple strength	Colour *L**	0.07 ± 0.25	-	829	63	0.39	0.19	Merino	(Greeff *et al*. 2003)
Yield	GR	-0.52 ± 0.17	-	829	63	0.55	0.38	Merino	(Greeff *et al*. 2003)
Yield	C	-0.72 ± 0.18	-	829	63	0.55	0.28	Merino	(Greeff *et al*. 2003)
Yield	EMD	0.36 ± 0.19	-	829	63	0.55	0.31	Merino	(Greeff *et al*. 2003)
Yield	EMA	0.20 ± 0.19	-	829	63	0.55	0.33	Merino	(Greeff *et al*. 2003)
Yield	pH	0.29 ± 0.31	-	829	63	0.55	0.08	Merino	(Greeff *et al*. 2003)
Yield	Colour *L**	-0.28 ± 0.22	-	829	63	0.55	0.19	Merino	(Greeff *et al*. 2003)

CFW = clean fleece weight, GFW = greasy fleece weight
C = fat depth at the C site, GR = tissue depth at the GR site
EMD = eye muscle depth, EMW = eye muscle width, EMA = eye muscle area

Table 14. Estimates of correlations between reproduction and wool traits

Estimates of genetic ($r_g \pm$ s.e.), phenotypic ($r_p \pm$ s.e.), environmental ($r_e \pm$ s.e.) and permanent environmental ($r_{pe} \pm$ s.e.) correlations for traits 1 and 2, numbers of records and sires, heritability (h_i^2), breed and reference

Trait 1	Trait 2	r_g	r_p	r_e	r_{pe}	Records	Sires	h_1^2	h_2^2	Breed	Reference
NLW/EJ	**Wool weight**										
Mean 3 joinings	GFW 15m	0.20 ± 0.23	-0.01 ± 0.03	-	-	1,581	130	0.04	0.38	Hyfer	(Fogarty *et al.* 1994)
Sum 3 parities	CFW 16m	-0.39 ± 0.20	-0.02 ± 0.04	-	-	618	113	0.29	0.62	Afrino	(Snyman *et al.* 1998a)
LW/EJ	GFW adult	-0.14	-	-0.03	0.22	29,572	911	0.06	0.53	Columbia	(Hanford *et al.* 2002)
28m	CFW 28m	-0.19 ± 0.18	0.11 ± 0.03	-	-	2,015	158	-	-	Merino	(Ingham and Ponzoni 2002)
40m	CFW 40m	-0.41 ± 1.05	0.02 ± 0.03	-	-	1,942	158	-	-	Merino	(Ingham and Ponzoni 2002)
52m	CFW 52m	-0.13 ± 0.30	0.08 ± 0.03	-	-	1,849	158	-	-	Merino	(Ingham and Ponzoni 2002)
64m	CFW 64m	-0.08 ± 0.25	0.10 ± 0.04	-	-	1,176	158	-	-	Merino	(Ingham and Ponzoni 2002)
	GFW adult	-0.05 ± 0.22	-0.07 ± 0.02	0.00 ± 0.02	-0.44 ± 0.19	2,872	216	0.04	0.53	Merino	(Cloete *et al.* 2004)
NLW/EJ	**Fibre diam**										
Sum 3 parities	16m	-0.09 ± 0.20	-0.01 ± 0.03	-	-	618	113	0.29	0.73	Afrino	(Snyman *et al.* 1998a)
28m	FD 28m	0.09 ± 0.16	0.04 ± 0.03	-	-	2,022	158	-	-	Merino	(Ingham and Ponzoni 2002)
40m	FD 40m	0.36 ± 0.58	0.02 ± 0.03	-	-	1,943	158	-	-	Merino	(Ingham and Ponzoni 2002)
52m	FD 52m	0.10 ± 0.27	0.04 ± 0.03	-	-	1,851	158	-	-	Merino	(Ingham and Ponzoni 2002)
64m	FD 64m	-0.07 ± 0.25	0.08 ± 0.04	-	-	1,176	158	-	-	Merino	(Ingham and Ponzoni 2002)
NLW/EJ	**Staple length**										
	12m	-0.20	-	0.03	-	2,449	226	0.06	0.56	Columbia	(Hanford *et al.* 2002)
NLB/EJ	**Wool weight**										
Mean 3 joinings	GFW 15m	0.16 ± 0.22	-0.02 ± 0.03	-	-	1,581	130	0.09	0.38	Hyfer	(Fogarty *et al.* 1994)
Sum 3 parities	CFW 16m	-0.33 ± 0.17	-0.02 ± 0.04	-	-	618	113	0.23	0.62	Afrino	(Snyman *et al.* 1998a)
	GFW adult	-0.13	-	-0.11	0.51	29,572	911	0.09	0.53	Columbia	(Hanford *et al.* 2002)
	GFW adult	-0.20 ± 0.15	-0.04 ± 0.02	0.03 ± 0.02	-0.05 ± 0.25	2,872	216	0.10	0.53	Merino	(Cloete *et al.* 2004)
NLB/EJ	**Fibre diam**										
Sum 3 parities	16m	-0.17 ± 0.18	-0.03 ± 0.05	-	-	618	113	0.23	0.73	Afrino	(Snyman *et al.* 1998a)
NLB/EJ	**Staple length**										
	12m	-0.05	-	0.01	-	2,449	226	0.09	0.56	Columbia	(Hanford *et al.* 2002)

***Table 14. Estimates of correlations between reproduction and wool traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	r_{pe}	Records	Sires	h_1^2	h_2^2	Breed	Reference
NLW/EL	**Wool weight**										
	CFW	0. 17 ± 0.19	-	-	-	3,857	-	0.09	0.60	White face	(Saboulard *et al*. 1995)
	GFW	-0.68	-	0.00	-	5,140	241	0.03	0.47	Columbia	(Bromley *et al*. 2000)
	GFW	0.10	-	-0.00	-	7,095	500	0.08	0.55	Polypay	(Bromley *et al*. 2000)
	GFW	0.04	-	-0.00	-	5,695	404	0.06	0.51	Rambouillet	(Bromley *et al*. 2000)
	GFW	-0.20	-	0.00	-	6,452	453	0.08	0.51	Targhee	(Bromley *et al*. 2000)
NLB/EL	**Wool weight**										
Mean 3 joinings	GFW 15m	-0.02 ± 0.20	-0.02 ± 0.03	-	-	1,581	130	0.19	0.38	Hyfer	(Fogarty *et al*. 1994)
	CFW	0. 26 ± 0.16	-	-	-	3,857	-	0.16	0.60	White face	(Saboulard *et al*. 1995)
	GFW adult	-0.45	-	0.09	-	5,140	241	0.07	0.47	Columbia	(Bromley *et al*. 2000)
	GFW adult	-0.18	-	0.02	-	7,095	500	0.14	0.53	Polypay	(Bromley *et al*. 2000)
	GFW adult	-0.06	-	0.04	-	5,695	404	0.10	0.51	Rambouillet	(Bromley *et al*. 2000)
	GFW adult	0.07	-	-0.04	-	6,452	453	0.11	0.53	Targhee	(Bromley *et al*. 2000)
	GFW adult	0.21	0.04	-	-	647	128	0.09	0.44	Polypay	(Rao and Notter 2000)
	GFW adult	-0.09	-0.02	-	-	2,269	311	0.11	0.41	Targhee	(Rao and Notter 2000)
NLB/EL	**Fibre diam**										
	Adult	0.30	0.07	-	-	1,459	225	0.11	0.50	Targhee	(Rao and Notter 2000)
NLW/EL	**Staple length**										
		-0.99	-	-	-	4,603	241	0.00	0.44	Columbia	(Bromley *et al*. 2000)
		-0.18	-	-	-	7,095	500	0.09	0.58	Polypay	(Bromley *et al*. 2000)
		-0.17	-	-	-	5,695	404	0.07	0.41	Rambouillet	(Bromley *et al*. 2000)
		0.02	-	-	-	5,534	453	0.07	0.54	Targhee	(Bromley *et al*. 2000)
NLB/EL	**Staple length**										
		-0.01	-	-	-	4,603	241	0.07	0.41	Columbia	(Bromley *et al*. 2000)
		0.02	-	-	-	7,095	500	0.14	0.53	Polypay	(Bromley *et al*. 2000)
		-0.01	-	-	-	5,695	404	0.09	0.36	Rambouillet	(Bromley *et al*. 2000)
		0.01	-	-	-	5,534	453	0.11	0.53	Targhee	(Bromley *et al*. 2000)

***Table 14. Estimates of correlations between reproduction and wool traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	r_{pe}	Records	Sires	h_1^2	h_2^2	Breed	Reference
WW/EJ	**Wool weight**										
Mean 3 joinings	GFW 15m	0.29 ± 0.24	0.01 ± 0.03	-	-	1,581	130	0.06	0.38	Hyfer	(Fogarty *et al.* 1994)
	CFW 15m	0.41 ± 0.11	0.01 ± 0.04	-	-	1,360	-	0.13	0.32	Merino	(Snyman *et al.* 1998)
	CFW 15m	0.26 ± 0.16	0.04 ± 0.03	-	-	1,535	-	0.13	0.29	Merino	(Snyman *et al.* 1998)
	CFW 15m	0.06 ± 0.11	0.01 ± 0.02	-	-	1,971	-	0.22	0.27	Merino	(Snyman *et al.* 1998)
Sum 3 parities	CFW 16m	-0.52 ± 0.22	-0.06 ± 0.05	-	-	618	113	0.17	0.62	Afrino	(Snyman *et al.* 1998a)
Sum 3 parities	GFW 15m	0.30 ± 0.12	0.06 ± 0.02	-		1,875	-	0.15	0.44	Merino	(Cloete *et al.* 2002b)
Sum 3 parities	CFW 15m	0.26 ± 0.11	0.08 ± 0.02	-		1,869	-	0.15	0.42	Merino	(Cloete *et al.* 2002b)
	GFW	-0.01 ± 0.18	-0.07 ± 0.02	-0.02 ± 0.02	-0.48 ± 0.22	2,872	216	0.04	0.53	Merino	(Cloete *et al.* 2004)
WW/EJ	**Fibre diam**										
	15m	0.18 ± 0.13	0.09 ± 0.04	-	-	1,360	-	0.13	0.63	Merino	(Snyman *et al.* 1998)
	15m	0.26 ± 0.20	0.07 ± 0.03	-	-	1,535	-	0.13	0.63	Merino	(Snyman *et al.* 1998)
	15m	0.22 ± 0.11	0.10 ± 0.02	-	-	1,971	-	0.22	0.60	Merino	(Snyman *et al.* 1998)
Sum 3 parities	16m	-0.11 ± 0.22	-0.03 ± 0.05	-	-	618	113	0.17	0.73	Afrino	(Snyman *et al.* 1998a)
Sum 3 parities	15m	0.17 ± 0.10	0.05 ± 0.03	-	-	1,875	-	0.15	0.71	Merino	(Cloete *et al.* 2002b)
WW/EJ	**Yield**										
Sum 3 parities	15m	0.03 ± 0.13	0.03 ± 0.02	-	-	1,871	-	0.15	0.63	Merino	(Cloete *et al.* 2002b)
WW/EL	**Wool weight**										
	GFW	-0.56	-	0.21	-	5,140	241	0.02	0.47	Columbia	(Bromley *et al.* 2001)
	GFW	-0.02	-	-0.17	-	7,083	499	0.07	0.45	Polypay	(Bromley *et al.* 2001)
	GFW	0.19	-	-0.68	-	5,695	418	0.10	0.51	Rambouillet	(Bromley *et al.* 2001)
	GFW	-0.07	-	0.00	-	6,452	453	0.11	0.51	Targhee	(Bromley *et al.* 2001)
WW/EL	**Staple length**										
		-0.11	-	-0.98	-	4,603	241	0.02	0.41	Columbia	(Bromley *et al.* 2001)
		-0.06	-	-1.00	-	7,095	500	0.07	0.47	Polypay	(Bromley *et al.* 2001)
		0.08	-	-1.00	-	5,695	404	0.11	0.35	Rambouillet	(Bromley *et al.* 2001)
		0.03	-	-0.73	-	5,534	453	0.11	0.50	Targhee	(Bromley *et al.* 2001)
EL/EJ	**Wool weight**										
Mean 3 joinings	GFW 15m	0.32 ± 0.32	-0.01 ± 0.03	-	-	1,581	130	0.03	0.38	Hyfer	(Fogarty *et al.* 1994)

***Table 14. Estimates of correlations between reproduction and wool traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	r_{pe}	Records	Sires	h_1^2	h_2^2	Breed	Reference
Ewe rearing	**Wool weight**										
Mean 3 joinings	GFW 15m	-0.12 ± 0.31	-0.01 ± 0.03	-	-	1,581	130	0.07	0.38	Hyfer	(Fogarty *et al*. 1994)
	CFW	-0.14 ± 0.22	-	-	-	3,857	-	0.06	0.60	White face	(Saboulard *et al*. 1995)
Scrotal circ.	**Wool traits**										
18m	GFW 12m	0.31 ± 0.37	0.12 ± 0.05	-	-	571	27	0.15	0.32	Corriedale	(Brash *et al*. 1994b)
18m	CFW 12m	0.15 ± 0.42	0.08 ± 0.05	-	-	571	27	0.15	0.29	Corriedale	(Brash *et al*. 1994b)
18m	FD 12m	0.22 ± 0.34	-0.05 ± 0.05	-	-	571	27	0.15	0.56	Corriedale	(Brash *et al*. 1994b)
18m	FD 18m	0.59 ± 0.36	0.02 ± 0.04	-	-	571	27	0.15	0.62	Corriedale	(Brash *et al*. 1994b)
18m	Yield 12m	0.00 ± 0.32	-0.02 ± 0.05	-	-	571	27	0.15	0.53	Corriedale	(Brash *et al*. 1994b)

NLW = Number of lambs weaned; NLB = Number of lambs born; WW = Litter weight of lamb weaned; NLBA = Number of lambs born alive; /EJ = per ewe joined; /EL = per ewe lambing; Ewe rearing = Lamb rearing ability of the ewe (NLW/NLB); EL/EJ = Ewe fertility; NLB/EL = Litter size

Table 15. Estimates of correlations between reproduction traits and growth and carcass traits

Estimates of genetic ($r_g \pm$ s.e.), phenotypic ($r_p \pm$ s.e.), environmental ($r_e \pm$ s.e.) and permanent environmental ($r_{pe} \pm$ s.e.) correlations for traits 1 and 2, numbers of records and sires, heritability (h_i^2), breed and reference

Trait 1	Trait 2	r_g	r_p	r_e	r_{pe}	Records	Sire	h_1^2	h_2^2	Breed	Reference
NLW/EJ	**Weight**										
Mean 3 join	15m	0.20 ± 0.24	0.08 ± 0.03	-	-	1,619	130	0.10	0.61	Hyfer	(Fogarty *et al.* 1994)
Sum 3 parities	Wean 4m	0.11 ± 0.26	0.03 ± 0.04	-	-	618	-	0.29	0.41	Afrino	(Snyman *et al.* 1998a)
Sum 3 parities	9m	0.29 ± 0.21	0.10 ± 0.05	-	-	618	-	0.29	0.63	Afrino	(Snyman *et al.* 1998a)
Sum 3 parities	18m	0.40 ± 0.21	0.15 ± 0.05	-	-	618	-	0.29	0.60	Afrino	(Snyman *et al.* 1998a)
	Adult	0.35 ± 0.13	0.09 ± 0.01	-	-0.41 ± 0.14	10,520	385	0.04	0.46	Merino	(Swan *et al.* 2001)
	Birth	0.00	-	0.00	-	24,741	916	0.07	0.27	Columbia	(Hanford *et al.* 2002)
	Wean 120d	0.24	-	0.04	-	23,903	916	0.07	0.15	Columbia	(Hanford *et al.* 2002)
	Adult	0.36 ± 0.26	0.06 ± 0.02	0.12 ± 0.02	-0.27 ± 0.16	2,955	216	0.04	0.49	Merino	(Cloete *et al.* 2004)
NLB/EJ	**Weight**										
Mean 3 join	15m	0.01 ± 0.18	0.03 ± 0.03	-	-	1,619	130	0.19	0.61	Hyfer	(Fogarty *et al.* 1994)
Sum 3 parities	Wean 4m	-0.11 ± 0.19	0.04 ± 0.04	-	-	618	-	0.23	0.41	Afrino	(Snyman *et al.* 1998a)
Sum 3 parities	9m	0.23 ± 0.18	0.12 ± 0.05	-	-	618	-	0.23	0.63	Afrino	(Snyman *et al.* 1998a)
Sum 3 parities	18m	0.31 ± 0.19	0.16 ± 0.05	-	-	618	-	0.23	0.60	Afrino	(Snyman *et al.* 1998a)
	Joining	0.41	0.04	-	-	3,110	220	0.06	0.17	Canadian	(Hansen and Shrestha 1999)
	Joining	-0.28	-0.02	-	-	3,962	300	0.16	0.14	Outaouais	(Hansen and Shrestha 1999)
	Joining	0.31	0.03	-	-	3,988	291	0.06	0.33	Rideau	(Hansen and Shrestha 1999)
	Birth	0.10	-	-0.00	-	24,741	916	0.09	0.27	Columbia	(Hanford *et al.* 2002)
	Wean 120d	0.33	-	0.05	-	23,903	916	0.09	0.16	Columbia	(Hanford *et al.* 2002)
Feb - lamb	Joining	0.29 ± 0.20	-0.02	-0.08	-	3,746	762	0.19	0.26	Composite	(Hansen and Shrestha 2002)
June - lamb	Joining	0.36 ± 0.19	0.02	-0.04	-	3,746	727	0.18	0.31	Composite	(Hansen and Shrestha 2002)
Oct - lamb	Joining	0.01 ± 0.28	0.04	0.02	-	3,554	743	0.08	0.33	Composite	(Hansen and Shrestha 2002)
	Adult	0.08 ± 0.15	0.09 ± 0.02	0.12 ± 0.02	0.12 ± 0.21	2,955	216	0.10	0.49	Merino	(Cloete *et al.* 2004)
NLW/EL	**Weight**										
	Birth	-0.37	-	-0.00	-	5,140	241	0.03	0.25	Columbia	(Bromley *et al.* 2000)
	Birth	0.01	-	0.01	-	7,095	500	0.06	0.16	Polypay	(Bromley *et al.* 2000)
	Birth	0.00	-	0.00	-	5,695	404	0.07	0.21	Rambouillet	(Bromley *et al.* 2000)
	Birth	-0.11	-	-0.00	-	6,452	453	0.18	0.26	Targhee	(Bromley *et al.* 2000)
	ADG 0 - 120d	-0.82	-	0.01	-	5,140	241	0.03	0.06	Columbia	(Bromley *et al.* 2000)
	ADG 0 - 120d	0.17	-	0.00	-	7,095	500	0.05	0.20	Polypay	(Bromley *et al.* 2000)
	ADG 0 - 120d	0.00	-	0.00	-	5,695	404	0.06	0.11	Rambouillet	(Bromley *et al.* 2000)
	ADG 0 - 120d	0.25	-	0.00	-	6,452	453	0.18	0.19	Targhee	(Bromley *et al.* 2000)

***Table 15. Estimates of correlations between reproduction traits and growth and carcass traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	r_{pe}	Records	Sire	h_1^2	h_2^2	Breed	Reference
NLB/EL	**Birth weight**										
		0.18	-	0.00	-	5,921	-	0.07	0.43	Segurena	(Analla *et al.* 1997)
		0.58 ± 0.12	0.09 ± 0.10	-	0.57 ± 0.13	510	126	0.14	0.04	Merino	(Analla and Serradilla 1998)
Parity 1		-0.39 (0.22) [1]	-	0.30 (0.16)	-	5,480	166	0.34	0.15	Baluchi	(Yazdi *et al.* 1999)
Parity 2		0.05 (0.24) [1]	-	0.21 (0.12)	-	4,150	163	0.36	0.15	Baluchi	(Yazdi *et al.* 1999)
Parity 2		-0.29 (0.30) [1]	-	0.34 (0.22)	-	2,991	149	0.43	0.15	Baluchi	(Yazdi *et al.* 1999)
		-0.01	-	0.04	-	5,140	241	0.07	0.24	Columbia	(Bromley *et al.* 2000)
		0.03	-	0.04	-	7,095	500	0.13	0.16	Polypay	(Bromley *et al.* 2000)
		0.26	-	0.00	-	5,695	404	0.09	0.21	Rambouillet	(Bromley *et al.* 2000)
		0.11	-	0.02	-	6,452	453	0.14	0.19	Targhee	(Bromley *et al.* 2000)
NLB/EL	**Weight**										
Mean 3 join	15m	-0.19 ± 0.17	-0.02 ± 0.03	-	-	1,619	130	0.31	0.61	Hyfer	(Fogarty *et al.* 1994)
Fall - lamb	90d	0.33	0.11	-	-	447	52	0.05	0.14	Composite	(Al-Shorepy and Notter 1996)
	45d	0.48	-	0.01	-	5,921	-	0.07	0.31	Segurena	(Analla *et al.* 1997)
	90d	0.36	-	0.01	-	5,921	-	0.07	0.26	Segurena	(Analla *et al.* 1997)
	30d	0.19 ± 0.07	0.03 ± 0.04	-	0.18 ± 0.09	510	126	0.14	0.06	Merino	(Analla and Serradilla 1998)
	60d	0.15 ± 0.11	0.05 ± 0.03	-	0.10 ± 0.06	510	126	0.14	0.09	Merino	(Analla and Serradilla 1998)
	90d	0.13 ± 0.08	0.04 ± 0.02	-	0.08 ± 0.04	510	126	0.14	0.14	Merino	(Analla and Serradilla 1998)
	Joining	-0.69	0.04	-	-	2,040	208	0.10	0.17	Canadian	(Hansen and Shrestha 1999)
	Joining	0.21	0.01	-	-	2,865	289	0.23	0.14	Outaouais	(Hansen and Shrestha 1999)
	Joining	0.25	0.01	-	-	2,991	282	0.13	0.33	Rideau	(Hansen and Shrestha 1999)
	ADG 0 - 120d	-0.30	-	0.04	-	5,140	241	0.07	0.07	Columbia	(Bromley *et al.* 2000)
	ADG 0 - 120d	0.20	-	0.04	-	7,095	500	0.12	0.20	Polypay	(Bromley *et al.* 2000)
	ADG 0 - 120d	0.71	-	0.00	-	5,695	404	0.09	0.10	Rambouillet	(Bromley *et al.* 2000)
	ADG 0 - 120d	0.03	-	0.03	-	6,452	453	0.13	0.19	Targhee	(Bromley *et al.* 2000)
	18m	0.35	-	0.00	-	557	40	0.06	0.48	Rambouillet	(Lee *et al.* 2000)
	60d	-0.14	-0.00	-	-	536	188	0.09	0.11	Polypay	(Rao and Notter 2000)
	60d	0.38	0.06	-	-	1,545	604	0.10	0.19	Suffolk	(Rao and Notter 2000)
	60d	0.22	0.01	-	-	510	96	0.11	0.14	Targhee	(Rao and Notter 2000)
	90d	0.09	0.02	-	-	298	54	0.10	0.10	Polypay	(Rao and Notter 2000)
	90d	0.43	0.08	-	-	327	171	0.09	0.13	Suffolk	(Rao and Notter 2000)
	120d	0.48	0.05	-	-	984	148	0.11	0.16	Targhee	(Rao and Notter 2000)
	PWG 60 - 120d	-0.05	-0.01	-	-	265	95	0.09	0.22	Polypay	(Rao and Notter 2000)
	PWG 60 - 120d	0.17	0.02	-	-	926	384	0.09	0.17	Suffolk	(Rao and Notter 2000)

***Table 15. Estimates of correlations between reproduction traits and growth and carcass traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	r_{pe}	Records	Sire	h_1^2	h_2^2	Breed	Reference
	PWG 60 - 120d	0.44	0.07	-	-	242	22	0.11	0.27	Targhee	(Rao and Notter 2000)
	Adult	0.37 ± 0.08	0.14 ± 0.01	-	0.53 ± 0.25	8,520	385	0.08	0.46	Merino	(Swan *et al.* 2001)
	12w	0.36 ± 0.09	-	-	-	2,551	150	0.15	0.16	Welsh Mountain	(Ap Dewi *et al.* 2002)
	Adult	0.56 ± 0.06	-	-	-	2,226	150	0.15	0.49	Welsh Mountain	(Ap Dewi *et al.* 2002)
Feb - lamb	Joining	0.02 ± 0.28	-0.02	-0.05	-	3,746	762	0.27	0.26	Composite	(Hansen and Shrestha 2002)
June - lamb	Joining	0.31 ± 0.24	0.03	-0.03	-	3,746	727	0.21	0.31	Composite	(Hansen and Shrestha 2002)
Oct - lamb	Joining	0.28 ± 0.24	0.03	0.11	-	3,554	743	0.22	0.33	Composite	(Hansen and Shrestha 2002)
NLB/EL	**Carcass**										
	C fat live 14m	-0.01 ± 0.17	-	-	-	490	87	0.15	0.24	Welsh Mountain	(Ap Dewi *et al.* 2002)
	EMD live 14m	0.35 ± 0.16	-	-	-	490	87	0.15	0.22	Welsh Mountain	(Ap Dewi *et al.* 2002)
WW/EJ	**Weight**										
Mean 3 join	15m	0.51 ± 0.20	0.15 ± 0.03	-	-	1,619	130	0.13	0.61	Hyfer	(Fogarty *et al.* 1994)
	16m	0.80 ± 0.04	0.15 ± 0.04	-	-	1,360	-	0.13	0.55	Merino	(Snyman *et al.* 1998)
	16m	0.67 ± 0.13	0.20 ± 0.03	-	-	1,535	-	0.13	0.38	Merino	(Snyman *et al.* 1998)
	16m	0.72 ± 0.07	0.32 ± 0.02	-	-	1,971	-	0.22	0.43	Merino	(Snyman *et al.* 1998)
Sum 3 parities	Wean 4m	0.75 ± 0.19	0.13 ± 0.05	-	-	618	-	0.17	0.41	Afrino	(Snyman *et al.* 1998a)
Sum 3 parities	9m	0.77 ± 0.18	0.24 ± 0.05	-	-	618	-	0.17	0.63	Afrino	(Snyman *et al.* 1998a)
Sum 3 parities	18m	0.89 ± 0.18	0.26 ± 0.04	-	-	618	-	0.17	0.60	Afrino	(Snyman *et al.* 1998a)
Sum 3 parities	15m	0.58 ± 0.11	0.18 ± 0.02	-	-	1,956	-	0.15	0.52	Merino	(Cloete *et al.* 2002b)
	Adult	0.73 ± 0.20	0.11 ± 0.02	0.12 ± 0.02	-0.38 ± 0.19	2,955	216	0.04	0.49	Merino	(Cloete *et al.* 2004)
WW/EL	**Weight**										
	Birth	-0.22	-	-	-0.02	5,140	241	0.03	0.25	Columbia	(Bromley *et al.* 2001)
	Birth	0.28	-	-	0.00	7,095	246	0.09	0.16	Polypay	(Bromley *et al.* 2001)
	Birth	0.23	-	-	-0.03	5,695	418	0.14	0.20	Rambouillet	(Bromley *et al.* 2001)
	Birth	0.11	-	-	-0.02	6,452	453	0.11	0.25	Targhee	(Bromley *et al.* 2001)
	ADG 0 - 120d	0.07	-	-	-0.01	5,140	241	0.11	0.06	Columbia	(Bromley *et al.* 2001)
	ADG 0 - 120d	0.23	-	-	0.00	7,083	246	0.07	0.17	Polypay	(Bromley *et al.* 2001)
	ADG 0 - 120d	-0.07	-	-	0.00	5,695	418	0.21	0.13	Rambouillet	(Bromley *et al.* 2001)
	ADG 0 - 120d	0.05	-	-	0.00	6,452	453	0.19	0.24	Targhee	(Bromley *et al.* 2001)
	12w	0.10	-	-	-	2,551	150	0.20	0.16	Welsh Mountain	(Ap Dewi *et al.* 2002)
	14m	0.76 ± 0.05	-	-	-	2,226	150	0.20	0.49	Welsh Mountain	(Ap Dewi *et al.* 2002)
Sum 3 year	15-16m	0.58 ± 0.11	0.18 ± 0.02	-	-	1,956	-	-	-	Merino	(Cloete *et al.* 2002b)

***Table 15. Estimates of correlations between reproduction traits and growth and carcass traits** - Continued*

Trait 1	Trait 2	r_g	r_p	r_e	r_{pe}	Records	Sire	h_1^2	h_2^2	Breed	Reference
WW/EL	**Carcass**										
	C fat live 14m	0.20 ± 0.14	-	-	-	490	87	0.20	0.24	Welsh Mountain	(Ap Dewi *et al.* 2002)
	EMD live 14m	0.28 ± 0.02	-	-	-	490	87	0.20	0.22	Welsh Mountain	(Ap Dewi *et al.* 2002)
EL/EJ	**Weight**										
Mean 3 join	15m	0.63 ± 0.22	0.08 ± 0.03	-	-	1,619	130	0.07	0.61	Hyfer	(Fogarty *et al.* 1994)
12m	90d	-0.25	0.23	-	-	337	51	0.09	0.25	Composite	(Fossceco and Notter 1995)
Spring join	90d	-0.31	-0.04	-	-	853	52	0.09	0.14	Composite	(Al-Shorepy and Notter 1996)
	Adult	0.12 ± 0.09	0.15 ± 0.01	-	-0.33 ± 0.19	10,520	385	0.07	0.46	Merino	(Swan *et al.* 2001)
EL/EJ	**Scrotal circ.**										
12m	90d	0.20	-	-	-	337	51	0.09	0.52	Composite	(Fossceco and Notter 1995)
Ewe rearing	**Weight**										
Mean 3 join	15m	0.24 ± 0.25	0.05 ± 0.03	-	-	1,619	130	0.11	0.61	Hyfer	(Fogarty *et al.* 1994)
	Adult	0.16 ± 0.17	0.01 ± 0.01	-	-0.46 ± 0.12	8,520	385	0.02	0.46	Merino	(Swan *et al.* 2001)
Scrotal circ.	**Weight**										
18m	4m	0.65 ± 0.45	0.12 ± 0.05	-	-	571	27	0.15	0.34	Corriedale	(Brash *et al.* 1994b)
18m	12m	0.24 ± 0.50	0.21 ± 0.04	-	-	571	27	0.15	0.13	Corriedale	(Brash *et al.* 1994b)
90d	90d	0.67	0.76	-	-	380	52	0.52	0.25	Composite	(Fossceco and Notter 1995)
90d	90d	0.60	0.67	-	-	318	48	0.26	0.14	Composite	(Al-Shorepy and Notter 1996)

NLW = Number of lambs weaned; NLB = Number of lambs born; WW = Litter weight of lamb weaned; NLBA = Number of lambs born alive; /EJ = per ewe joined; /EL = per ewe lambing; Ewe rearing = Lamb rearing ability of the ewe (NLW/NLB); EL/EJ = Ewe fertility; NLB/EL = Litter size

ADG = Average daily gain, PWG = Post weaning gain

[1] Bayesian estimate, mean (standard deviation)

Table 16. Estimates of correlations between disease traits and wool and growth traits

Estimates of genetic ($r_g \pm$ s.e.) and phenotypic ($r_p \pm$ s.e.) correlations for traits 1 and 2, numbers of records and sires, heritability (h_i^2), breed and reference

Trait 1	Trait 2	r_g	r_p	Records	Sires	h_1^2	h_2^2	Breed	Reference
Worm resistance	**Worm resistance**								
$\sqrt[3]{}$FEC 4m	$\sqrt[3]{}$FEC 15m	0.09	0.10	2,213	113	0.40	0.22	Merino	(Greeff and Karlsson 1997)
$\sqrt[3]{}$FEC 3m	$\sqrt[3]{}$FEC 15m	0.66	0.11	3,733	89	0.19	0.15	Merino	(Greeff and Karlsson 1998)
Worm resistance	**Wool weight**								
$\log_e$(FEC+1)	GFW 12m	-0.15 ± 0.18	-0.02 ± 0.02	2,611	60	0.27	0.41	Romney	(Bisset *et al.* 1992)
$\sqrt[3]{}$FEC pooled	GFW 10m	0.21 ± 0.11	0.01	3,702	287	0.25	0.25	Merino	(Eady *et al.* 1998)
$\sqrt[3]{}$FEC pooled	CFW 10m	0.21 ± 0.11	0.02	3,682	287	0.25	0.32	Merino	(Eady *et al.* 1998)
$\sqrt[3]{}$FEC pooled	GFW 16m	-0.06 ± 0.14	-0.03	2,938	194	0.25	0.40	Merino	(Eady *et al.* 1998)
$\sqrt[3]{}$FEC pooled	CFW 16m	-0.05 ± 0.13	-0.01	2,938	194	0.25	0.46	Merino	(Eady *et al.* 1998)
$\sqrt[3]{}$FEC pooled	GFW 21m	0.21 ± 0.12	0.02	2,990	175	0.25	0.31	Merino	(Eady *et al.* 1998)
$\sqrt[3]{}$FEC pooled	CFW 21m	0.07 ± 0.13	0.02	2,968	175	0.25	0.31	Merino	(Eady *et al.* 1998)
$\sqrt[3]{}$FEC 3m	CFW 14m	0.01	-0.04	3,658	89	0.19	0.38	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC 15m	CFW 14m	0.06	0.02	3,658	89	0.15	0.38	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC	CFW 16m	0.10 ± 0.16	0.01 ± 0.03	3,665	165	0.15	0.35	Merino	(Greeff and Karlsson 1999)
Worm resistance	**Fibre diameter**								
$\sqrt[3]{}$FEC pooled	10m	-0.09 ± 0.09	-0.06	3,690	287	0.25	0.62	Merino	(Eady *et al.* 1998)
$\sqrt[3]{}$FEC pooled	16m	-0.12 ± 0.12	-0.07	2,946	194	0.25	0.73	Merino	(Eady *et al.* 1998)
$\sqrt[3]{}$FEC pooled	21m	0.04 ± 0.12	-0.01	2,585	175	0.25	0.57	Merino	(Eady *et al.* 1998)
$\sqrt[3]{}$FEC 3m	14m	-0.17	-0.01	3,696	89	0.19	0.43	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC 15m	14m	-0.02	-0.02	3,696	89	0.15	0.43	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC	16m	0.17 ± 0.13	0.01 ± 0.02	3,665	165	0.15	0.57	Merino	(Greeff and Karlsson 1999)
Worm resistance	**Wool - other**								
$\sqrt[3]{}$FEC 3m	CVFD 14m	0.10	0.01	1,142	36	0.19	0.50	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC 15m	CVFD 14m	0.09	0.08	1,142	36	0.15	0.50	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC 3m	SL 14m	-0.08	-0.03	1,981	52	0.19	0.40	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC 15m	SL 14m	-0.09	-0.08	1,981	52	0.15	0.40	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC 3m	SS 14m	0.21	-0.05	1,989	52	0.19	0.26	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC 15m	SS 14m	0.15	-0.04	1,989	52	0.15	0.26	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC	CVFD 16m	-0.05 ± 0.14	0.09 ± 0.03	3,665	165	0.15	0.54	Merino	(Greeff and Karlsson 1999)
$\sqrt[3]{}$FEC	SS 16m	0.13 ± 0.15	-0.03 ± 0.03	3,665	165	0.15	0.36	Merino	(Greeff and Karlsson 1999)

***Table 16. Estimates of correlations between disease traits and wool and growth traits** - Continued*

Trait 1	Trait 2	r_g	r_p	Records	Sires	h_1^2	h_2^2	Breed	Reference
Worm resistance	**Growth**								
$\log_e$(FEC+1)	Weaning wt	-0.05 ± 0.22	-0.01 ± 0.02	2,611	60	0.27	0.13	Romney	(Bisset *et al.* 1992)
$\log_e$(FEC+1)	Weight 6m	-0.29 ± 0.22	-0.05 ± 0.02	2,611	60	0.27	0.11	Romney	(Bisset *et al.* 1992)
$\log_e$(FEC+1)	Gain 3 - 6m	-0.36 ± 0.23	-0.05 ± 0.02	2,611	60	0.27	0.08	Romney	(Bisset *et al.* 1992)
$\log_e$(FEC+100)	Weaning wt	-0.16 ± 0.25	-0.09 ± 0.03	1,547	64	0.20	0.22	Romney	(Douch *et al.* 1995)
$\log_e$(FEC+100)	Weight 6m	-0.13 ± 0.25	-0.15 ± 0.03	1,547	64	0.20	0.29	Romney	(Douch *et al.* 1995)
$\log_e$(FEC+100)	Gain 3 - 6m	-0.30 ± 0.25	-0.12 ± 0.03	1,547	64	0.20	0.22	Romney	(Douch *et al.* 1995)
$\log_e$(FEC+1)	Weight 5m	-0.63 ± 0.32	-0.06	567	23	0.15	0.14	Scot Blackface	(Bishop *et al.* 1996)
$\sqrt[3]{}$FEC pooled	Weaning wt	-0.20 ± 0.08	-0.02	6,084	328	0.25	0.29	Merino	(Eady *et al.* 1998)
$\sqrt[3]{}$FEC pooled	Weight 10m	-0.18 ± 0.09	-0.04	5,177	328	0.25	0.32	Merino	(Eady *et al.* 1998)
$\sqrt[3]{}$FEC pooled	Weight 16M	-0.26 ± 0.12	-0.09	3,655	194	0.25	0.33	Merino	(Eady *et al.* 1998)
$\sqrt[3]{}$FEC 3m	Weaning wt 3m	0.11	-0.08	3,739	89	0.19	0.34	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC 15m	Weaning wt 3m	0.14	-0.04	3,733	89	0.15	0.34	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC 3m	Weight 15m	-0.08	-0.03	3,664	89	0.19	0.40	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC 15m	Weight 15m	0.12	-0.04	3,664	89	0.15	0.40	Merino	(Greeff and Karlsson 1998)
$\sqrt[3]{}$FEC	Weight 16m	-0.08 ± 0.15	-0.08 ± 0.02	3,665	165	0.15	0.32	Merino	(Greeff and Karlsson 1999)
$\log_e$(FEC+6.25)	Birth weight	0.11	0.07	1,445	73	0.23	-	Scot Blackface	(Bishop and Stear 2001)
$\log_e$(FEC+6.25)	Weight 4w	0.24	0.11	1,445	73	0.23	-	Scot Blackface	(Bishop and Stear 2001)
$\log_e$(FEC+6.25)	Weight 8w	0.16	0.10	1,445	73	0.23	-	Scot Blackface	(Bishop and Stear 2001)
Fleece rot	**Wool**								
Incidence	GFW 10m	0.02 ± 0.07	-0.04 ± 0.01	6,213	300	0.17	0.39	Merino	(Li *et al.* 1999)
Incidence	CFW 10m	0.11 ± 0.09	0.02 ± 0.02	6,213	300	0.17	0.41	Merino	(Li *et al.* 1999)
Incidence	Yield 10m	-0.10 ± 0.08	-0.04 ± 0.02	6,213	300	0.17	0.48	Merino	(Li *et al.* 1999)
Incidence	FD 10m	-0.18 ± 0.06	-0.12 ± 0.01	6,213	300	0.17	0.65	Merino	(Li *et al.* 1999)
Incidence	SDFD 10m	-0.17 ± 0.07	-0.04 ± 0.01	6,213	300	0.17	0.50	Merino	(Li *et al.* 1999)
Incidence	SL 10m	-0.11 ± 0.08	-0.04 ± 0.02	6,213	300	0.17	0.50	Merino	(Li *et al.* 1999)
Incidence	SS 10m	-0.20 ± 0.09	0.07 ± 0.02	6,213	300	0.17	0.34	Merino	(Li *et al.* 1999)

FEC = Faecal egg count; GFW = Greasy fleece weight, CFW = Clean fleece weight, FD = Fibre diameter, SDFD = Standard deviation of fibre diameter, CVFD = Coefficient of variation of fibre diameter, SL = Staple length, SS = Staple strength

Table 17. Estimates of correlations between feed intake, wool growth and other production traits

Estimates of genetic ($r_g \pm$ s.e.) and phenotypic ($r_p \pm$ s.e.) correlations for traits 1 and 2, numbers of records and sires, heritability (h_i^2), breed and reference

Trait 1	Trait 2	r_g	r_p	Records	Sires	h_1^2	h_2^2	Breed	Reference
Intake	**Intake**								
DOMI	DOMI/LW	-0.29 ± 0.22	0.87 ± 0.01	2,278	126	0.12	0.10	Merino	(Lee *et al.* 1995)
DOMI 12m	DOMI/LW 12m	0.44	0.84	1,729	100	0.08	0.05	Merino	(Lee *et al.* 2002)
DOMI 28m	DOMI/LW 28m	0.87	0.83	1,292	150	0.20	0.24	Merino	(Lee *et al.* 2002)
Intake	**Growth/fat**								
DOMI	Weight	0.73 ± 0.31	0.28 ± 0.02	2,278	126	0.12	0.67	Merino	(Lee *et al.* 1995)
DOMI	C fat live	0.29 ± 0.25	-0.05 ± 0.02	2,278	126	0.12	0.47	Merino	(Lee *et al.* 1995)
DOMI/LW	Weight	-0.42 ± 0.27	-0.21 ± 0.02	2,278	126	0.10	0.67	Merino	(Lee *et al.* 1995)
DOMI/LW	C fat live	-0.23 ± 0.28	-0.27 ± 0.02	2,278	126	0.10	0.47	Merino	(Lee *et al.* 1995)
DOMI 12m	Weight	0.71 ± 0.21	0.29 ± 0.02	1,729	100	0.08	0.38	Merino	(Lee *et al.* 2002)
DOMI 12m	C fat live	0.33 ± 0.71	0.16 ± 0.03	1,729	100	0.08	0.06	Merino	(Lee *et al.* 2002)
DOMI/LW 12m	Weight	-0.25 ± 0.32	-0.22 ± 0.02	1,729	100	0.05	0.38	Merino	(Lee *et al.* 2002)
DOMI/LW 12m	C fat live	-0.37 ± 0.87	-0.01 ± 0.03	1,729	100	0.05	0.06	Merino	(Lee *et al.* 2002)
DOMI 28m	Weight	0.34 ± 0.22	0.35 ± 0.03	1,292	150	0.20	0.34	Merino	(Lee *et al.* 2002)
DOMI 28m	C fat live	-0.11 ± 0.29	0.07 ± 0.03	1,292	150	0.20	0.22	Merino	(Lee *et al.* 2002)
DOMI/LW 28m	Weight	-0.23 ± 0.22	-0.20 ± 0.03	1,292	150	0.24	0.34	Merino	(Lee *et al.* 2002)
DOMI/LW 28m	C fat live	-0.46 ± 0.25	-0.15 ± 0.03	1,292	150	0.24	0.22	Merino	(Lee *et al.* 2002)
Intake	**Wool growth**								
DOMI	Wool growth	0.49 ± 0.35	0.18 ± 0.03	1,772	126	0.12	0.41	Merino	(Lee *et al.* 1995)
DOMI	Wool growth efficiency	-0.10 ± 0.48	-0.55 ± 0.02	1,772	126	0.12	0.21	Merino	(Lee *et al.* 1995)
DOMI/LW	Wool growth	0.41 ± 0.37	0.07 ± 0.03	1,772	126	0.10	0.41	Merino	(Lee *et al.* 1995)
DOMI/LW	Wool growth efficiency	-0.03 ± 0.51	-0.55 ± 0.02	1,772	126	0.10	0.21	Merino	(Lee *et al.* 1995)
DOMI 12m	Wool growth	-0.07 ± 0.28	0.08 ± 0.03	1,729	100	0.08	0.38	Merino	(Lee *et al.* 2002)
DOMI 12m	Wool growth efficiency	-0.26 ± 0.28	-0.54 ± 0.02	1,729	100	0.08	0.24	Merino	(Lee *et al.* 2002)
DOMI/LW 12m	Wool growth	-0.41 ± 0.34	-0.05 ± 0.03	1,729	100	0.05	0.38	Merino	(Lee *et al.* 2002)
DOMI/LW 12m	Wool growth efficiency	-0.48 ± 0.28	-0.53 ± 0.02	1,729	100	0.05	0.24	Merino	(Lee *et al.* 2002)
DOMI 28m	Wool growth	-0.25 ± 0.26	0.09 ± 0.03	1,292	150	0.20	0.33	Merino	(Lee *et al.* 2002)
DOMI 28m	Wool growth efficiency	-0.77 ± 0.14	-0.57 ± 0.02	1,292	150	0.20	0.32	Merino	(Lee *et al.* 2002)
DOMI/LW 28m	Wool growth	-0.39 ± 0.23	-0.03 ± 0.03	1,292	150	0.24	0.33	Merino	(Lee *et al.* 2002)
DOMI/LW 28m	Wool growth efficiency	-0.71 ± 0.14	-0.55 ± 0.02	1,292	150	0.24	0.32	Merino	(Lee *et al.* 2002)

***Table 17. Estimates of correlations between feed intake, wool growth and other production traits** - Continued*

Trait 1	Trait 2	r_g	r_p	Records	Sires	h_1^2	h_2^2	Breed	Reference
Intake	**Wool traits**								
DOMI 12m	Clean fleece weight	0.03 ± 0.27	0.10 ± 0.02	1,729	100	0.08	0.37	Merino	(Lee *et al.* 2002)
DOMI 12m	Fibre diameter	0.34 ± 0.23	0.08 ± 0.03	1,729	100	0.08	0.62	Merino	(Lee *et al.* 2002)
DOMI 12m	CV Fibre diameter	-0.20 ± 0.30	-0.04 ± 0.02	1,729	100	0.08	0.25	Merino	(Lee *et al.* 2002)
DOMI/LW 12m	Clean fleece weight	-0.01 ± 0.33	-0.13 ± 0.02	1,729	100	0.05	0.37	Merino	(Lee *et al.* 2002)
DOMI/LW 12m	Fibre diameter	0.09 ± 0.30	0.00 ± 0.03	1,729	100	0.05	0.62	Merino	(Lee *et al.* 2002)
DOMI/LW 12m	CV Fibre diameter	-0.28 ± 0.38	0.02 ± 0.02	1,729	100	0.05	0.25	Merino	(Lee *et al.* 2002)
DOMI 28m	Clean fleece weight	0.24 ± 0.21	0.16 ± 0.03	1,292	150	0.20	0.52	Merino	(Lee *et al.* 2002)
DOMI 28m	Fibre diameter	0.45 ± 0.20	0.06 ± 0.03	1,292	150	0.20	0.72	Merino	(Lee *et al.* 2002)
DOMI 28m	CV Fibre diameter	0.38 ± 0.29	-0.03 ± 0.03	1,292	150	0.20	0.23	Merino	(Lee *et al.* 2002)
DOMI/LW 28m	Clean fleece weight	0.03 ± 0.21	-0.02 ± 0.03	1,292	150	0.24	0.52	Merino	(Lee *et al.* 2002)
DOMI/LW 28m	Fibre diameter	0.40 ± 0.19	0.02 ± 0.03	1,292	150	0.24	0.72	Merino	(Lee *et al.* 2002)
DOMI/LW 28m	CV Fibre diameter	0.23 ± 0.27	-0.02 ± 0.03	1,292	150	0.24	0.23	Merino	(Lee *et al.* 2002)
Wool growth	**Other traits**								
Wool growth	Wool growth efficiency	0.77 ± 0.34	0.66 ± 0.02	2,278	126	0.41	0.21	Merino	(Lee *et al.* 1995)
Wool growth	Weight adult	0.13 ± 0.15	0.24 ± 0.03	2,278	126	0.41	0.67	Merino	(Lee *et al.* 1995)
Wool growth efficiency	Weight adult	-0.07 ± 0.20	0.00 ± 0.03	2,278	126	0.21	0.67	Merino	(Lee *et al.* 1995)
Wool growth	C fat live adult	-0.01 ± 0.17	0.04 ± 0.03	2,278	126	0.41	0.47	Merino	(Lee *et al.* 1995)
Wool growth efficiency	C fat live adult	-0.05 ± 0.22	0.07 ± 0.03	2,278	126	0.21	0.47	Merino	(Lee *et al.* 1995)
Wool growth 12m	Wool growth efficiency	0.72	1.01	1,729	100	0.38	0.24	Merino	(Lee *et al.* 2002)
Wool growth 12m	C fat live 12m	-0.18 ± 0.44	0.08 ± 0.03	1,729	100	0.38	0.06	Merino	(Lee *et al.* 2002)
Wool growth efficiency 12m	C fat live 12m	-0.20 ± 0.49	-0.04 ± 0.03	1,729	100	0.24	0.06	Merino	(Lee *et al.* 2002)
Wool growth 12m	Weight 12m	0.26 ± 0.16	0.23 ± 0.03	1,729	100	0.38	0.38	Merino	(Lee *et al.* 2002)
Wool growth efficiency 12m	Weight 12m	0.08 ± 0.19	-0.02 ± 0.03	1,729	100	0.24	0.38	Merino	(Lee *et al.* 2002)
Wool growth 28m	Wool growth efficiency	0.70	0.79	1,292	100	0.38	0.24	Merino	(Lee *et al.* 2002)
Wool growth 28m	C fat live 28m	0.17 ± 0.24	-0.01 ± 0.03	1,292	100	0.38	0.06	Merino	(Lee *et al.* 2002)
Wool growth efficiency 28m	C fat live 28m	0.28 ± 0.25	-0.05 ± 0.03	1,292	100	0.24	0.06	Merino	(Lee *et al.* 2002)
Wool growth 28m	Weight 28m	0.37 ± 0.19	0.21 ± 0.03	1,292	100	0.38	0.38	Merino	(Lee *et al.* 2002)
Wool growth efficiency 28m	Weight 28m	0.05 ± 0.22	-0.05 ± 0.03	1,292	100	0.24	0.38	Merino	(Lee *et al.* 2002)

DOMI = Digestible organic matter intake; DOMI/LW = Digestible organic matter intake per unit of live weight; C fat live = Ultrasonic fat depth measured approximately 45mm from the midline over 12th rib

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