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Appendix 1. Least square means of fur traits in different year-season-parity groups for New Zealand White rabbits at 8 & 12 weeks of age (Model 1).

at 8 & 12 weeks of age (Model 1).								
Year-Season-Parity	NO.	HL	HDD	HOG	MOD	MDG	PHD	PHG
		Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E
8-week of age:								
1989-Autumn-1st Parity 2199		2.4±0.01	11.4±0.12	61.1±0.34	9.3±0.11	50.4±0.35	79.5±0.38	82.0±0.19
1989-Autumn-2nd Parity 1220		2.5±0.01	11.6±0.13	62.8±0.36	9.7±0.12	51.9±0.37	82.2±0.40	82.1±0.20
1989-Winter-2nd Parity 240		2.5±0.01	12.2±0.19	65.1±0.51	10.3±0.17	54.2±0.52	83.9±0.56	82.7±0.28
1989-Winter-3rd Parity 180		2.4±0.01	12.0±0.20	61.7±0.54	10.0±0.18	51.1±0.56	83.7±0.60	82.2±0.30
1990-Autumn-1st Parity 3680		2.4±0.01	12.5±0.12	62.8±0.33	10.4±0.11	52.0±0.35	83.0±0.38	82.3±0.18
1990-Autumn-2nd Parity 2260		2.4±0.01	12.2±0.12	61.5±0.34	10.1±0.12	50.8±0.36	81.9±0.39	82.1±0.19
1990-Autumn-3rd Parity 500		2.4±0.01	12.4±0.15	62.0±0.40	10.4±0.14	51.2±0.42	82.1±0.45	82.1±0.22
1990-Autumn-4th Parity 120		2.3±0.01	12.1±0.25	63.1±0.66	10.1±0.22	52.3±0.68	82.1±0.72	82.6±0.36
1990-Autumn-5th Parity 240		2.4±0.01	12.4±0.21	63.4±0.56	10.4±0.19	52.9±0.58	83.3±0.62	82.9±0.31
1990-Winter-2nd Parity 860		2.4±0.01	12.0±0.14	62.2±0.37	10.0±0.13	50.8±0.39	81.3±0.42	81.3±0.20
1990-Winter-3rd Parity 2020		2.4±0.01	11.8±0.12	61.7±0.34	9.8±0.12	50.6±0.36	81.4±0.39	81.4±0.19
1990-Winter-4th Parity 1340		2.4±0.01	11.6±0.13	59.5±0.36	9.5±0.12	49.0±0.37	79.7±0.40	81.9±0.20
1990-Winter-5th Parity 380		2.4±0.01	11.7±0.16	61.0±0.44	9.8±0.15	50.4±0.46	82.3±0.49	82.2±0.24
1990-Spring-3rd Parity 320		2.3±0.01	12.5±0.17	60.6±0.45	10.4±0.15	50.5±0.47	81.7±0.50	83.0±0.25
1990-Spring-4th Parity 941		2.4±0.01	12.0±0.14	60.9±0.37	9.8±0.12	50.5±0.38	80.4±0.42	82.5±0.20
1990-Spring-5th Parity 1080		2.4±0.01	12.4±0.13	61.0±0.36	10.3±0.12	51.0±0.38	81.8±0.41	83.2±0.20
1991-Autumn-1st Parity 2020		2.3±0.01	13.0±0.15	62.8±0.40	10.9±0.14	52.1±0.42	84.1±0.45	82.3±0.22
1991-Autumn-2nd Parity 340		2.3±0.01	12.6±0.19	64.9±0.50	10.5±0.17	54.2±0.52	82.9±0.58	82.7±0.28
1991-Autumn-3rd Parity 220		2.3±0.01	13.3±0.22	64.7±0.58	11.2±0.20	53.9±0.60	84.7±0.64	82.6±0.32
1991-Autumn-4th Parity 180		2.4±0.01	12.5±0.22	63.5±0.59	10.3±0.20	52.8±0.61	82.4±0.65	82.8±0.33
1991-Winter-2nd Parity 400		2.3±0.01	12.4±0.16	62.8±0.42	10.4±0.14	52.1±0.44	83.4±0.47	82.4±0.23
1991-Winter-3rd Parity 280		2.3±0.01	12.5±0.16	62.5±0.44	10.4±0.15	51.8±0.45	81.9±0.49	82.4±0.24
1992-Winter-1st Parity 180		2.3±0.01	13.1±0.24	62.2±0.64	10.9±0.21	51.6±0.66	83.6±0.70	82.2±0.35
1992-Winter-2nd Parity 1500		2.3±0.01	12.6±0.15	62.2±0.41	10.6±0.14	51.6±0.42	83.5±0.46	82.4±0.23
1992-Winter-3rd Parity 800		2.3±0.01	12.7±0.17	62.5±0.45	10.7±0.15	51.9±0.46	83.5±0.50	82.5±0.25
1992-Winter-4th Parity 120		2.3±0.01	12.2±0.25	63.9±0.67	10.2±0.22	52.9±0.69	82.1±0.73	82.1±0.36
1992-Winter-3rd Parity 440		2.2±0.01	12.1±0.18	61.2±0.49	10.0±0.17	50.5±0.51	82.2±0.55	81.8±0.27
1992-Spring-4th Parity 620		2.2±0.01	11.9±0.17	61.7±0.45	10.0±0.15	50.8±0.47	82.4±0.50	81.7±0.25
12-week age:								
1989-Autumn-1st Parity 2199		3.0±0.02	17.2±0.15	89.1±0.54	14.4±0.16	78.0±0.54	84.1±0.26	87.3±0.10
1989-Autumn-2nd Parity 1220		3.0±0.02	17.1±0.16	89.5±0.57	14.4±0.17	78.6±0.57	84.7±0.28	87.6±0.10
1989-Winter-2nd Parity 240		3.0±0.02	17.0±0.22	86.6±0.78	14.5±0.24	75.7±0.78	86.1±0.41	87.2±0.15
1989-Winter-3rd Parity 180		2.9±0.02	18.0±0.23	85.1±0.83	15.5±0.25	74.0±0.83	86.3±0.45	86.8±0.16
1990-Autumn-1st Parity 3680		3.0±0.02	19.2±0.15	90.2±0.53	16.9±0.16	79.2±0.54	88.3±0.26	87.5±0.10
1990-Autumn-2nd Parity 2260		3.0±0.02	19.0±0.15	90.4±0.55	16.8±0.17	79.4±0.55	88.4±0.27	87.6±0.10
1990-Autumn-3rd Parity 500		3.0±0.02	19.1±0.18	89.3±0.64	16.7±0.19	78.4±0.64	88.0±0.32	87.5±0.12
1990-Autumn-4th Parity 120		2.9±0.03	19.4±0.28	89.3±1.09	17.1±0.30	78.2±0.99	88.6±0.55	87.5±0.19
1990-Autumn-5th Parity 240		3.0±0.02	19.4±0.24	91.1±0.86	17.0±0.26	79.8±0.86	88.5±0.47	87.4±0.17
1990-Winter-2nd Parity 860		3.0±0.02	18.9±0.17	90.0±0.59	16.4±0.18	79.0±0.59	87.1±0.29	87.6±0.11
1990-Winter-3rd Parity 2020		3.1±0.02	18.8±0.15	90.3±0.55	16.3±0.17	79.3±0.55	87.0±0.27	87.6±0.10
1990-Winter-4th Parity 1340		3.1±0.02	18.7±0.16	90.1±0.57	15.9±0.17	79.1±0.57	85.5±0.28	87.5±0.10
1990-Winter-5th Parity 380		3.1±0.02	19.3±0.19	90.8±0.69	16.3±0.21	79.8±0.69	84.5±0.36	87.6±0.13
1990-Spring-3rd Parity 320		3.0±0.02	19.5±0.20	89.7±0.71	17.2±0.21	78.8±0.70	88.2±0.37	87.6±0.13
1990-Spring-4th Parity 941		3.4±0.02	18.9±0.17	89.3±0.59	16.4±0.18	78.2±0.59	87.1±0.29	87.4±0.11
1990-Spring-5th Parity 1080		3.2±0.02	19.3±0.16	88.7±0.57	16.7±0.17	77.6±0.57	86.9±0.28	87.3±0.10

Appendix 1. Cont.

Year-Season-Parity	NO.	HL	HDD	HOG	MDD	MDG	PHD	PMG
		Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E
1991-Autumn-1st Parity	2020	3.0±0.02	19.1±0.18	86.8±0.64	16.7±0.19	76.0±0.64	87.9±0.33	87.2±0.12
1991-Autumn-2nd Parity	340	2.9±0.02	20.1±0.22	88.9±0.78	17.8±0.24	77.9±0.78	88.7±0.41	87.4±0.15
1991-Autumn-3rd Parity	220	3.1±0.02	20.2±0.25	88.7±0.89	17.9±0.27	77.8±0.89	88.6±0.48	87.5±0.17
1991-Autumn-4th Parity	180	3.0±0.02	20.0±0.25	88.0±0.91	17.5±0.28	77.1±0.90	87.8±0.49	87.4±0.17
1991-Winter-2nd Parity	400	3.0±0.02	19.8±0.19	86.4±0.66	17.6±0.20	75.4±0.66	89.0±0.34	87.0±0.12
1991-Winter-3rd Parity	280	3.0±0.02	19.6±0.19	88.1±0.68	17.4±0.21	77.2±0.68	89.2±0.35	87.4±0.13
1992-Winter-1st Parity	180	2.9±0.03	19.5±0.27	84.9±0.98	17.5±0.30	74.1±0.97	89.3±0.53	87.1±0.19
1992-Winter-2nd Parity	1500	3.0±0.02	18.9±0.18	85.9±0.64	16.6±0.19	75.0±0.64	87.8±0.33	87.0±0.12
1992-Winter-3rd Parity	800	2.9±0.02	19.5±0.20	85.6±0.70	17.2±0.21	74.7±0.70	88.2±0.36	87.0±0.13
1992-Winter-4th Parity	120	2.9±0.03	18.8±0.28	83.6±1.02	16.3±0.31	72.8±1.01	87.0±0.56	86.8±0.20
1992-Winter-3rd Parity	440	2.8±0.02	19.2±0.21	83.7±0.76	16.9±0.23	72.9±0.76	88.3±0.40	86.8±0.14
1992-Spring-4th Parity	620	2.9±0.02	19.8±0.20	86.2±0.70	17.5±0.21	75.3±0.70	88.8±0.37	87.1±0.13

*HL= Average total Hair length; HDD= Hair diameter of down hair; HOG= Hair diameter of guard hair; MDD= medulla diameter of down hair; MDG= medulla diameter of guard hair; PHD= medullation of down hair (%); PMG= medullation of guard hair (%).

Appendix 2. Least square means of fur traits in different year-season-parity groups in Californian rabbits at 8 & 12 weeks of age (Model 1).

Year-Season-Parity	NO.	HL	HDD	HDG	MDD	MDG	PHD	PMG
		Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E
8-week age:								
1990-Autumn-1st Parity	560	2.4±0.21	11.8±0.18	62.0±0.49	9.9±0.16	51.4±0.50	84.1±0.39	82.5±0.25
1990-Autumn-2nd Parity	220	2.5±0.22	11.9±0.23	60.5±0.62	9.9±0.20	49.9±0.64	83.8±0.52	82.5±0.32
1990-Winter-2nd Parity	1000	2.3±0.21	12.7±0.17	63.3±0.47	10.6±0.15	52.6±0.48	84.0±0.36	82.9±0.23
1990-Winter-3rd Parity	1240	2.3±0.21	12.2±0.17	63.4±0.48	10.3±0.15	52.6±0.49	84.1±0.37	82.9±0.24
1990-Winter-4th Parity	620	2.4±0.21	11.7±0.17	60.8±0.48	9.8±0.15	50.2±0.49	83.9±0.36	82.4±0.24
1990-Spring-3rd Parity	1000	2.3±0.21	12.5±0.18	62.1±0.49	10.5±0.16	51.7±0.50	83.9±0.39	83.3±0.25
1990-Spring-5th Parity	400	2.4±0.21	12.6±0.20	62.3±0.56	10.6±0.18	51.8±0.56	83.8±0.45	83.0±0.28
1991-Autumn-1st Parity	1000	2.4±0.21	12.4±0.21	61.8±0.57	10.3±0.18	50.5±0.58	83.2±0.47	81.6±0.29
1991-Autumn-2nd Parity	460	2.4±0.22	12.3±0.23	62.5±0.63	10.2±0.20	51.3±0.65	83.0±0.53	81.9±0.32
1991-Winter-2nd Parity	720	2.4±0.20	12.4±0.16	62.2±0.44	10.3±0.14	51.3±0.46	83.2±0.34	82.3±0.22
1991-Winter-3rd Parity	280	2.5±0.21	12.4±0.20	62.0±0.56	10.3±0.18	51.0±0.57	83.4±0.46	82.0±0.28
1992-Winter-2nd Parity	420	2.4±0.22	12.2±0.23	61.1±0.63	10.1±0.20	49.9±0.65	83.4±0.53	81.5±0.32
1992-Spring-4th Parity	200	2.4±0.23	11.5±0.24	59.8±0.67	9.6±0.21	48.5±0.69	84.3±0.57	80.9±0.34
1992-Spring-5th Parity	160	2.4±0.23	11.4±0.26	60.2±0.71	9.5±0.23	49.0±0.72	84.2±0.61	81.0±0.36
1989-Autumn-1st Parity	1939	2.3±0.21	11.9±0.17	61.5±0.47	9.7±0.15	51.2±0.48	81.9±0.36	83.0±0.23
1989-Autumn-2nd Parity	261	2.3±0.22	11.9±0.23	64.2±0.63	10.0±0.20	53.4±0.64	84.1±0.53	83.0±0.32
1989-Winter-2nd Parity	60	2.2±0.03	13.2±0.34	64.9±0.92	11.3±0.29	53.9±0.94	85.2±0.82	83.0±0.47
12-week age:								
1990-Autumn-1st Parity	560	3.0±0.05	18.7±0.25	87.6±0.80	16.4±0.28	76.5±0.77	86.8±0.50	80.0±0.22
1990-Autumn-2nd Parity	220	3.2±0.05	20.1±0.29	92.1±0.99	17.7±0.33	80.9±0.95	87.4±0.60	80.1±0.28
1990-Winter-2nd Parity	1000	3.0±0.05	19.5±0.24	89.0±0.76	17.2±0.27	78.0±0.74	87.9±0.48	80.7±0.21
1990-Winter-3rd Parity	1240	3.1±0.05	19.6±0.24	91.2±0.77	17.2±0.27	80.4±0.75	87.0±0.49	81.1±0.22
1990-Winter-4th Parity	620	3.1±0.05	19.0±0.24	88.2±0.78	16.3±0.28	77.4±0.76	85.1±0.49	80.9±0.22
1990-Spring-3rd Parity	1000	3.3±0.05	19.4±0.25	90.8±0.79	17.1±0.28	79.7±0.77	87.9±0.50	80.9±0.22
1990-Spring-5th Parity	400	3.2±0.05	19.8±0.27	91.9±0.88	17.5±0.30	80.8±0.84	87.9±0.54	80.9±0.25
1991-Autumn-1st Parity	1000	3.0±0.05	19.2±0.27	88.6±0.91	17.0±0.31	77.5±0.88	87.8±0.56	79.9±0.26
1991-Autumn-2nd Parity	460	3.0±0.05	19.2±0.30	90.3±1.01	17.0±0.33	79.3±0.96	87.8±0.61	80.2±0.28
1991-Winter-2nd Parity	720	3.1±0.05	19.4±0.23	89.7±0.73	17.0±0.26	78.5±0.71	86.9±0.47	80.1±0.20
1991-Winter-3rd Parity	280	3.2±0.05	19.5±0.27	89.0±0.89	17.1±0.30	77.9±0.86	87.0±0.55	79.9±0.25
1992-Winter-2nd Parity	420	3.0±0.05	18.5±0.30	86.5±1.01	16.1±0.33	75.2±0.96	86.6±0.61	79.3±0.28
1992-Spring-4th Parity	200	2.9±0.05	18.8±0.30	87.7±1.06	16.5±0.34	76.6±1.01	87.4±0.64	79.9±0.30
1992-Spring-5th Parity	160	3.0±0.05	19.3±0.32	87.3±1.12	17.1±0.36	76.0±1.07	87.9±0.68	79.5±0.32
1989-Autumn-1st Parity	1939	3.0±0.05	17.4±0.24	87.0±0.76	14.5±0.27	75.9±0.74	82.5±0.48	81.0±0.21
1989-Autumn-2nd Parity	261	2.9±0.05	17.2±0.29	89.6±1.09	14.7±0.33	78.7±0.95	86.0±0.61	81.5±0.28
1989-Winter-2nd Parity	60	2.8±0.05	17.5±0.40	86.0±1.44	14.8±0.44	75.1±1.36	84.6±0.85	80.8±0.41

*HL= Average total Hair length; HDD= Hair diameter of down hair; HDG= Hair diameter of guard hair; MDD= medulla diameter of down hair; MDG= medulla diameter of guard hair; PHD= medullation of down hair (Σ); PMG= medullation of guard hair (Σ).

Appendix 3. Least square means of fur traits of males and females in New Zealand White and Californian rabbits (Model 1).

Trait	New Zealand White		Californian	
	Males	Females	Males	Females
	Mean±SE	Mean±SE	Mean±SE	Mean±SE
Average total Hair length (cm):				
8 weeks	2.3±0.01	2.4±0.01	2.4±0.02	2.4±0.02
12 weeks	3.0±0.02	3.0±0.02	3.0±0.05	3.0±0.05
Hair diameter of down hair (µm):				
8 weeks	12.2±0.08	12.4±0.08	12.2±0.11	12.2±0.11
12 weeks	19.0±0.11	19.0±0.11	18.9±0.19	19.0±0.19
Hair diameter of guard hair (µm):				
8 weeks	62.2±0.22	62.5±0.22	61.9±0.31	62.2±0.31
12 weeks	87.9±0.39	88.3±0.39	88.9±0.53	89.0±0.53
Medulla diameter of down hair (µm):				
8 weeks	10.2±0.08	10.3±0.08	10.2±0.10	10.2±0.10
12 weeks	16.6±0.12	16.6±0.12	16.5±0.22	16.6±0.22
Medulla diameter of guard hair (µm):				
8 weeks	51.4±0.24	51.8±0.24	51.1±0.32	51.3±0.32
12 weeks	76.9±0.40	77.3±0.40	77.9±0.54	77.9±0.54
% of medullation of down hair:				
8 weeks	82.2±0.27	82.6±0.27	83.8±0.16	83.7±0.16
12 weeks	87.5±0.15	87.5±0.16	86.6±0.37	86.9±0.37
% of medullation of guard hair:				
8 weeks	82.2±0.13	82.4±0.13	82.3±0.15	82.4±0.15
12 weeks	87.3±0.06	87.3±0.06	80.4±0.14	80.4±0.14

Number of samples for Males and Females respectively were 12300 & 12380 for New Zealand White and 5220 & 5320 for Californian rabbits.

Appendix 4. Least square means of fur traits in different litter-size subclasses for New Zealand White and Californian rabbits at 8 & 12 weeks of age (Model 1).

Litter size		FL	FDH	FDT	MDH	MDT	HPH	HMT
at birth	NO.	Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E	Mean±S.E
New Zealand White:								
8-week age:								
<3	361	2.4±0.01	12.2±0.14	61.3±0.38	10.1±0.13	50.6±0.39	80.7±0.42	82.1±0.21
4	1338	2.4±0.01	12.4±0.10	62.2±0.27	10.4±0.09	51.7±0.29	83.2±0.31	82.7±0.15
5	2181	2.3±0.01	12.3±0.09	62.9±0.25	10.3±0.09	52.1±0.27	82.7±0.30	82.4±0.14
6	4819	2.3±0.01	12.2±0.08	62.6±0.23	10.1±0.08	51.9±0.25	82.1±0.28	82.5±0.13
7	5000	2.3±0.01	12.3±0.08	62.5±0.23	10.3±0.08	51.9±0.25	82.4±0.28	82.5±0.13
8	4682	2.3±0.01	12.2±0.08	62.7±0.23	10.2±0.08	51.9±0.25	82.3±0.28	82.3±0.13
9	3220	2.3±0.01	12.2±0.09	61.8±0.24	10.2±0.08	51.1±0.26	82.2±0.29	82.3±0.13
10	1939	2.3±0.01	12.4±0.09	62.6±0.26	10.4±0.09	52.0±0.28	83.4±0.31	82.5±0.15
>11	1140	2.4±0.01	12.2±0.10	62.5±0.29	10.2±0.10	51.4±0.30	82.4±0.33	81.6±0.16
12-week age:								
<3	361	3.0±0.02	18.9±0.17	86.5±0.60	16.3±0.18	75.6±0.60	86.7±0.30	87.3±0.11
4	1338	3.0±0.02	18.9±0.13	85.9±0.45	16.5±0.14	75.0±0.45	87.7±0.20	87.0±0.08
5	2181	3.0±0.02	19.3±0.12	88.6±0.43	16.9±0.13	77.5±0.43	87.8±0.18	87.3±0.07
6	4819	3.0±0.02	19.1±0.12	89.0±0.40	16.6±0.12	77.9±0.41	87.1±0.17	87.3±0.07
7	5000	3.0±0.02	19.0±0.12	88.4±0.40	16.5±0.12	77.4±0.41	87.0±0.16	87.2±0.07
8	4682	3.0±0.02	19.0±0.12	88.9±0.40	16.6±0.12	77.9±0.41	87.4±0.16	87.4±0.07
9	3220	3.0±0.02	18.9±0.12	87.7±0.41	16.4±0.12	76.8±0.42	87.2±0.17	87.3±0.07
10	1939	3.0±0.02	19.1±0.13	87.6±0.44	16.6±0.13	76.6±0.44	87.7±0.19	87.3±0.07
>11	1140	3.0±0.02	19.4±0.14	90.2±0.48	17.2±0.14	79.3±0.48	88.9±0.22	87.7±0.08
Californian:								
8-week age:								
<3	280	2.4±0.02	12.2±0.17	61.0±0.47	10.1±0.15	50.4±0.48	83.1±0.37	82.6±0.24
4	740	2.4±0.02	12.4±0.14	62.3±0.39	10.4±0.13	51.6±0.40	84.1±0.27	82.6±0.19
5	640	2.3±0.02	12.3±0.14	61.9±0.40	10.3±0.13	51.3±0.41	83.7±0.29	82.7±0.20
6	1800	2.4±0.02	12.3±0.12	62.2±0.33	10.3±0.11	51.3±0.35	83.9±0.20	82.3±0.16
7	2139	2.4±0.02	12.2±0.12	61.8±0.33	10.2±0.11	51.0±0.34	83.7±0.19	82.3±0.16
8	2620	2.4±0.02	12.2±0.11	62.7±0.32	10.2±0.10	51.9±0.33	84.2±0.18	82.5±0.16
9	1500	2.4±0.02	12.0±0.12	62.3±0.35	10.0±0.11	51.3±0.36	83.8±0.21	82.1±0.17
10	380	2.4±0.02	11.8±0.17	61.7±0.46	9.8±0.14	50.4±0.48	83.5±0.36	81.5±0.23
>11	441	2.4±0.02	12.3±0.18	62.4±0.49	10.2±0.16	51.4±0.50	83.6±0.38	82.4±0.25
12-week age:								
<3	280	3.0±0.05	18.9±0.24	88.6±0.77	16.4±0.27	77.7±0.75	85.8±0.49	80.5±0.21
4	740	3.1±0.05	18.7±0.21	87.7±0.65	16.2±0.24	76.5±0.64	86.2±0.42	80.1±0.18
5	640	3.0±0.05	19.0±0.22	88.5±0.67	16.5±0.25	77.5±0.66	86.4±0.43	80.2±0.18
6	1800	3.0±0.05	18.8±0.20	88.6±0.57	16.5±0.23	77.6±0.57	87.0±0.39	80.4±0.15
7	2139	3.1±0.05	18.8±0.20	88.5±0.56	16.3±0.23	77.2±0.56	86.1±0.38	80.2±0.15
8	2620	3.0±0.05	18.8±0.19	88.5±0.55	16.4±0.23	77.5±0.56	86.6±0.38	80.5±0.15
9	1500	3.0±0.05	19.3±0.20	90.2±0.58	17.1±0.23	79.1±0.58	87.7±0.39	80.4±0.16
10	380	3.1±0.05	18.7±0.24	90.7±0.76	16.9±0.27	79.6±0.74	89.3±0.48	81.0±0.21
>11	441	3.0±0.05	19.3±0.25	89.5±0.79	16.6±0.28	78.4±0.77	85.4±0.50	80.2±0.22

*FL= fiber length; FDH= fiber diameter in middle of hair; FDT= fiber diameter in tip of hair; MDH= medulla diameter in middle of hair; MDT= medulla diameter in tip of hair; HPH= hair medullation in middle of hair (%); HMT= hair medullation in tip of hair (%).

Appendix 5. Least square means of body weights in different year-season-parity groups in New Zealand White and Californian rabbits (Model 1).

Year-Season-Parity	W5		W6		W8		W10		W12	
	NO.	MEAN±S.E	NO.	MEAN±S.E	NO.	MEAN±S.E	NO.	MEAN±S.E	NO.	MEAN±S.E
New Zealand White:										
1989-Autumn-1st Parity	257	657±19.2	809±26.1	255	1104±29.1	252	1477± 39.9	249	1755±047.6	
1989-Autumn-2nd Parity	93	584±22.9	731±30.7	93	1053±35.4	91	1446± 49.1	89	1770±058.4	
1989-Winter-1st Parity	10	509±49.4	638±64.9	10	946±79.3	10	1397±111.0	10	1592±129.7	
1989-Winter-2nd Parity	39	717±28.8	859±38.3	39	1111±45.3	39	1474± 63.0	39	1830±074.0	
1989-Winter-3rd Parity	13	713±43.3	845±57.0	13	1083±69.2	13	1392± 96.9	13	1631±113.3	
1990-Autumn-1st Parity	371	664±17.5	822±24.0	362	1110±26.1	353	1496± 35.4	340	1894±042.6	
1990-Autumn-2nd Parity	180	647±19.4	764±26.3	172	989±29.8	163	1349± 41.0	158	1663±049.0	
1990-Autumn-3rd Parity	46	567±26.6	671±35.5	42	925±42.7	41	1190± 59.6	37	1555±072.7	
1990-Autumn-4th Parity	12	747±47.2	880±62.1	12	1228±75.7	12	1648±106.2	12	2043±124.1	
1990-Autumn-5th Parity	22	760±37.3	920±49.3	21	1318±60.7	21	1683± 84.7	21	2053±099.3	
1990-Autumn-6th Parity	54	628±25.7	781±34.4	52	1059±40.6	52	1369± 56.1	49	1676±067.5	
1990-Winter-1st Parity	20	492±37.6	607±49.6	20	798±59.9	20	1056± 83.7	20	1284±098.0	
1990-Winter-2nd Parity	88	565±22.7	685±30.5	85	951±35.3	83	1296± 49.0	80	1773±058.4	
1990-Winter-3rd Parity	186	590±19.8	711±26.8	180	971±30.4	178	1317± 41.7	176	1654±049.6	
1990-Winter-4th Parity	165	571±20.4	690±27.6	163	894±31.2	162	1156± 43.0	162	1405±051.0	
1990-Winter-5th Parity	100	538±22.0	657±29.5	100	804±33.8	100	1027± 46.6	99	1161±055.3	
1990-Winter-6th Parity	34	592±30.7	707±40.7	34	817±48.5	33	1048± 68.2	33	1182±080.1	
1991-Autumn-1st Parity	180	509±23.3	549±31.3	176	868±37.2	167	1130± 52.2	159	1572±061.9	
1991-Autumn-2nd Parity	29	567±34.8	602±46.0	29	935±56.4	29	1134± 79.3	28	1630±094.0	
1991-Autumn-3rd Parity	46	523±31.0	549±41.1	44	898±50.5	43	1164± 71.3	42	1647±084.4	
1991-Autumn-4th Parity	16	477±42.3	533±55.8	16	836±68.3	16	1102± 95.7	16	1410±112.1	
1991-Autumn-5th Parity	15	522±43.5	567±57.3	15	809±70.3	13	1078±103.7	12	1537±125.2	
1991-Winter-1st Parity	9	625±53.8	845±70.6	9	1006±88.0	8	1430±131.1	7	1536±165.3	
1991-Winter-2nd Parity	27	605±33.8	679±44.7	26	948±54.4	25	1278± 78.1	24	1648±091.9	
1991-Winter-3rd Parity	19	599±36.9	675±48.8	17	985±61.1	16	1253± 87.7	14	1504±109.4	
1991-Winter-4th Parity	28	576±30.9	588±41.0	22	777±53.3	18	971± 81.2	14	1628±108.2	
1992-Winter-1st Parity	101	510±27.8	539±37.0	89	867±45.2	88	1129± 63.5	88	1504±074.8	
1992-Winter-2nd Parity	133	474±24.6	496±32.9	127	764±39.6	122	1055± 55.9	120	1456±066.3	
1992-Winter-3rd Parity	77	504±27.6	522±36.7	73	875±45.1	72	1111± 63.4	71	17±075.1	
1992-Winter-4th Parity	78	449±26.5	383±35.4	62	761±46.8	60	895± 66.2	56	1446±079.2	
1992-Winter-5th Parity	17	369±39.3	414±51.8	15	630±65.8	14	919± 94.2	13	1314±113.4	
Californian:										
1989-Autumn-1st Parity	223	582±22.8	748± 41.4	223	997± 33.5	222	1317± 41.6	217	1688± 62.1	
1989-Autumn-2nd Parity	18	613±41.8	772± 87.8	17	934± 64.1	15	1279± 85.8	12	2104±124.2	
1989-Winter-1st Parity	16	625±46.2	723± 97.9	15	983± 70.5	15	1332± 89.7	15	1689±120.4	
1989-Winter-2nd Parity	58	584±29.7	734± 59.0	56	919± 44.5	55	1204± 56.1	52	1618± 79.5	
1989-Winter-3rd Parity	162	585±23.3	732± 42.9	160	972± 33.8	156	1383± 41.9	155	1730± 62.3	
1990-Autumn-1st Parity	25	602±37.0	686± 76.5	24	893± 55.7	24	1204± 70.4	23	1589± 97.7	
1990-Autumn-2nd Parity	11	541±52.4	634±111.9	10	638± 82.6	8	1145±117.6	7	1583±158.7	
1990-Autumn-3rd Parity	11	702±53.4	805±114.2	10	1191± 80.7	10	1570±102.5	10	1950±135.9	
1990-Autumn-4th Parity	27	378±34.1	511± 69.6	24	767± 52.6	22	1149± 67.9	21	1608± 93.8	
1990-Autumn-5th Parity	9	651±54.3	819±116.3	9	965± 81.2	9	1287±103.4	9	1708±137.3	
1990-Autumn-6th Parity	113	514±24.4	652± 45.7	110	836± 35.8	108	1179± 44.6	104	1575± 65.8	
1990-Winter-1st Parity	75	494±26.3	632± 51.2	75	835± 39.3	75	1161± 49.2	75	1511± 70.6	

Appendix 5.

Year-Season-Parity	W5		W6		W8		W10		W12	
	NO.	MEAN±S.E	NO.	MEAN±S.E	NO.	MEAN±S.E	NO.	MEAN±S.E	NO.	MEAN±S.E
1990-Winter-2nd Parity	40	475±30.4	609± 60.6	39	809± 45.5	39	1135± 57.2	39	1476± 79.9	
1990-Winter-3rd Parity	13	462±52.0	590±110.9	13	666± 77.9	12	903±101.9	12	992±135.9	
1990-Winter-4th Parity	47	514±29.9	845±59.5	47	824± 44.3	47	1115± 55.7	47	1470± 78.3	
1990-Winter-5th Parity	91	483±26.2	592± 50.2	91	739± 38.5	90	977± 48.2	89	1170± 69.7	
1990-Winter-6th Parity	39	474±31.6	625± 63.6	39	735± 47.3	39	991± 59.6	39	1190± 82.9	
1991-Autumn-1st Parity	9	575±52.9	716±113.1	9	849± 79.0	9	1054±100.4	9	1275±133.2	
1991-Autumn-2nd Parity	97	619±32.4	628± 65.5	95	1022± 49.7	90	1192± 62.7	83	1520± 88.4	
1991-Autumn-3rd Parity	26	582±42.5	532± 89.4	25	863± 65.4	24	1154± 84.0	24	1420±113.8	
1991-Autumn-4th Parity	9	633±59.7	614±128.5	9	986± 90.9	8	1214±119.7	8	1260±159.1	
1991-Autumn-5th Parity	31	525±42.6	456± 89.5	26	977± 67.8	23	1232± 88.3	23	1396±119.0	
1991-Winter-1st Parity	11	602±61.1	490±131.6	9	1091± 99.3	9	1140±126.6	7	1419±179.6	
1991-Winter-2nd Parity	52	570±27.5	584± 53.6	43	947± 41.4	42	1203± 52.0	39	1485± 76.6	
1991-Winter-3rd Parity	15	553±42.2	687± 88.6	15	666± 62.7	11	1097± 91.9	10	1574±126.3	
1991-Winter-4th Parity	20	521±38.3	432± 79.5	15	986± 68.9	15	1255± 87.6	15	1415±117.8	
1992-Winter-1st Parity	28	593±40.7	548± 85.1	25	980± 63.0	25	1151± 80.1	25	1300±108.5	
1992-Winter-2nd Parity	43	568±37.9	544± 78.6	41	912± 58.7	40	1080± 74.8	38	1277±103.4	
1992-Winter-3rd Parity	8	546±60.3	398±129.9	6	899±100.7	6	1086±128.2	6	1341±169.1	
1992-Winter-4th Parity	32	629±38.7	599± 80.5	30	955± 59.6	29	1209± 76.0	29	1346±103.8	
1992-Winter-5th Parity	21	507±44.1	427± 93.0	18	859± 70.4	18	990± 89.8	18	1187±120.9	

Appendix 6. Least square means of daily gains in different year-season-parity groups in New Zealand White and Californian rabbits (Model 1).

Year-Season-Parity	DG6		DG8		DG10		DG12	
	NO.	MEAN±S.E	NO.	MEAN±S.E	NO.	MEAN±S.E	NO.	MEAN±S.E
New Zealand White:								
1989-Autumn-1st Parity	257	19.4±0.8	255	22.0±0.9	252	24.4±0.9	249	27.2±1.1
1989-Autumn-2nd Parity	93	18.9±0.9	93	24.7±1.0	91	26.0±1.1	89	27.5±1.2
1989-Winter-1st Parity	10	16.1±1.9	10	22.9±2.2	10	29.5±2.4	10	25.6±2.7
1989-Winter-2nd Parity	39	17.9±1.1	39	18.4±1.2	39	24.8±1.4	39	30.4±1.6
1989-Winter-3rd Parity	13	16.4±1.6	13	17.3±1.9	13	21.2±2.1	13	25.0±2.3
1990-Autumn-1st Parity	371	20.2±0.7	362	22.2±0.7	353	25.0±0.8	340	28.2±1.0
1990-Autumn-2nd Parity	180	16.7±0.8	172	17.7±0.8	163	21.6±0.9	158	23.9±1.1
1990-Autumn-3rd Parity	46	16.0±1.0	42	16.8±1.2	41	20.8±1.3	37	26.6±1.6
1990-Autumn-4th Parity	12	17.7±1.8	12	25.7±2.1	12	28.2±2.3	12	27.7±2.6
1990-Autumn-5th Parity	22	23.2±1.4	21	27.8±1.7	21	28.9±1.8	21	24.5±2.1
1990-Autumn-6th Parity	54	19.0±1.0	52	20.2±1.1	52	23.7±1.2	49	23.0±1.5
1990-Winter-1st Parity	20	14.5±1.4	20	15.0±1.6	20	16.2±1.8	20	17.2±2.1
1990-Winter-2nd Parity	88	15.7±0.9	85	19.2±1.0	83	25.1±1.1	80	32.4±1.3
1990-Winter-3rd Parity	186	16.7±0.8	180	18.5±0.8	178	23.2±0.9	176	27.2±1.1
1990-Winter-4th Parity	165	15.2±0.8	163	14.9±0.9	162	17.7±1.0	162	19.9±1.1
1990-Winter-5th Parity	100	13.1±0.9	100	13.2±0.9	100	14.1±1.0	99	13.9±1.2
1990-Winter-6th Parity	34	12.9±1.2	34	11.4±1.3	33	12.6±1.5	33	12.5±1.7
1991-Autumn-1st Parity	180	14.7±0.9	176	19.0±1.0	167	19.8±1.2	159	26.7±1.3
1991-Autumn-2nd Parity	29	13.3±1.3	29	19.7±1.5	29	20.1±1.7	28	26.8±2.0
1991-Autumn-3rd Parity	46	14.4±1.2	44	19.1±1.4	43	21.3±1.6	42	26.8±1.8
1991-Autumn-4th Parity	16	16.0±1.6	16	17.4±1.9	16	19.7±2.1	16	22.5±2.4
1991-Autumn-5th Parity	15	15.4±1.7	15	17.2±1.9	13	18.3±2.2	12	25.4±2.6
1991-Winter-1st Parity	9	20.7±2.0	9	21.7±2.4	8	25.3±2.8	7	24.0±3.4
1991-Winter-2nd Parity	27	16.3±1.3	26	16.2±1.5	25	21.0±1.7	24	25.8±1.9
1991-Winter-3rd Parity	19	16.0±1.4	17	19.9±1.7	16	20.6±1.9	14	22.8±2.3
1991-Winter-4th Parity	28	14.6±1.2	22	14.8±1.5	18	17.4±1.8	14	28.3±2.3
1992-Winter-1st Parity	101	13.8±1.8	89	17.6±1.2	88	19.6±1.4	88	25.6±1.6
1992-Winter-2nd Parity	133	12.4±1.0	127	15.7±1.1	122	20.6±1.2	120	26.4±1.4
1992-Winter-3rd Parity	77	13.3±1.1	73	18.6±1.2	72	12.0±1.4	71	25.6±1.6
1992-Winter-4th Parity	78	8.7±1.0	62	15.1±1.3	60	15.3±1.4	56	24.9±1.7
1992-Winter-5th Parity	17	12.8±1.5	15	14.2±1.8	14	17.4±2.0	13	26.6±2.4
Californians:								
1989-Autumn-1st Parity	223	19.5±0.8	223	20.3±0.9	222	22.5±0.9	217	26.6±1.3
1989-Autumn-2nd Parity	18	19.3±1.5	17	19.3±1.6	15	24.1±1.9	12	31.7±2.7
1989-Winter-1st Parity	16	16.3±1.7	15	16.3±1.8	15	23.0±2.0	15	28.0±2.6
1989-Winter-2nd Parity	58	17.0±1.0	56	14.7±1.2	55	21.0±1.3	52	28.4±1.7
1989-Winter-3rd Parity	162	20.2±0.8	160	19.2±0.9	156	23.9±0.9	155	26.2±1.3
1990-Autumn-1st Parity	25	15.3±1.3	24	13.7±1.4	24	21.1±1.6	23	26.0±2.1
1990-Autumn-2nd Parity	11	15.1±1.9	10	10.7±2.1	8	18.7±2.6	7	29.2±3.5
1990-Autumn-3rd Parity	11	20.0±1.9	10	23.3±2.1	10	23.5±2.3	10	27.3±3.0
1990-Autumn-4th Parity	27	18.5±1.2	24	18.6±1.4	22	23.0±1.5	21	31.1±2.0
1990-Autumn-5th Parity	9	15.7±2.0	9	14.5±2.1	9	21.8±2.3	9	28.9±3.0
1990-Autumn-6th Parity	113	16.3±0.8	110	15.9±0.9	108	23.0±1.0	104	29.8±1.4
1990-Winter-1st Parity	75	17.2±0.9	75	16.3±1.0	75	21.4±1.1	75	26.2±1.5
1990-Winter-2nd Parity	40	16.3±1.1	39	17.5±1.2	39	21.4±1.3	39	26.3±1.7

Appendix 6. Cont.

Year-Season-Parity	DG6		DG8		DG10		DG12	
	NO.	MEAN±S.E	NO.	MEAN±S.E	NO.	MEAN±S.E	NO.	MEAN±S.E
1990-Winter-3rd Parity	13	13.6±1.9	13	8.3±2.0	12	10.7±2.3	12	10.8±3.0
1990-Winter-4th Parity	47	15.1±1.1	47	15.1±1.2	47	19.0±1.3	47	24.6±1.7
1990-Winter-5th Parity	91	12.9±0.9	91	12.6±1.0	90	14.3±1.1	89	15.9±1.5
1990-Winter-6th Parity	39	14.1±1.1	39	12.4±1.2	39	15.5±1.3	39	19.6±1.8
1991-Autumn-1st Parity	9	12.2±1.9	9	13.4±2.0	9	13.2±2.2	9	14.1±2.9
1991-Autumn-2nd Parity	97	15.0±1.1	95	20.4±1.3	90	17.5±1.4	83	20.8±1.9
1991-Autumn-3rd Parity	26	9.4±1.5	25	15.8±1.7	24	19.9±1.9	24	23.1±2.5
1991-Autumn-4th Parity	9	13.3±2.2	9	17.0±2.3	8	14.8±2.7	8	13.1±3.5
1991-Autumn-5th Parity	31	12.0±1.5	26	20.8±1.7	23	18.5±2.0	23	19.7±2.6
1991-Winter-1st Parity	11	10.2±2.2	9	24.1±2.5	9	19.1±2.8	7	21.3±3.9
1991-Winter-2nd Parity	52	14.3±1.0	43	19.1±1.1	42	20.9±1.2	39	23.3±1.6
1991-Winter-3rd Parity	15	15.9±1.5	15	11.6±1.6	11	18.7±2.1	10	27.0±2.7
1991-Winter-4th Parity	20	11.4±1.4	15	19.6±1.8	15	21.3±2.0	15	22.8±2.6
1992-Winter-1st Parity	28	12.5±1.5	25	16.7±1.6	25	15.8±1.8	25	16.8±2.3
1992-Winter-2nd Parity	43	11.3±1.4	41	16.5±1.5	40	17.2±1.7	38	19.8±2.2
1992-Winter-3rd Parity	8	6.5±2.2	6	15.6±2.6	6	15.8±2.9	6	20.4±3.7
1992-Winter-4th Parity	32	11.5±1.4	30	16.9±1.5	29	17.5±1.7	29	16.4±2.2
1992-Winter-5th Parity	21	9.5±1.6	18	15.7±1.8	18	14.2±2.0	18	17.8±2.6

Appendix 7. Least square means of livability in different year-season-parity group of New Zealand White and Californian rabbits (Model 1).

Year-Season-Parity	NO	L6	LB	L10	L12
		MEAN±S.E	MEAN±S.E	MEAN±S.E	MEAN±S.E
<u>New Zealand White:</u>					
1989-Autumn-1st Parity	257	1.0±0.02	1.0±0.03	1.0±0.03	1.0±0.03
1989-Autumn-2nd Parity	93	1.0±0.03	1.0±0.03	1.0±0.04	1.0±0.04
1989-Winter-1st Parity	10	1.0±0.06	1.0±0.08	1.1±0.09	1.0±0.10
1989-Winter-2nd Parity	39	1.0±0.03	1.1±0.04	1.1±0.05	1.1±0.05
1989-Winter-3rd Parity	13	1.0±0.05	1.1±0.07	1.1±0.08	1.0±0.09
1990-Autumn-1st Parity	371	1.0±0.02	1.0±0.02	1.0±0.03	1.0±0.03
1990-Autumn-2nd Parity	180	1.0±0.02	0.9±0.03	0.9±0.03	0.9±0.03
1990-Autumn-3rd Parity	46	1.0±0.03	0.9±0.04	0.9±0.04	0.8±0.05
1990-Autumn-4th Parity	12	1.0±0.06	1.0±0.07	1.0±0.09	1.0±1.10
1990-Autumn-5th Parity	22	1.0±0.04	1.0±0.06	1.1±0.07	1.0±0.07
1990-Autumn-6th Parity	54	1.0±0.03	1.0±0.04	1.0±0.04	1.0±0.05
1990-Winter-1st Parity	20	1.0±0.04	1.0±0.06	1.0±0.07	1.0±0.07
1990-Winter-2nd Parity	88	1.0±0.02	1.0±0.03	1.0±0.04	1.0±0.04
1990-Winter-3rd Parity	186	1.0±0.02	1.0±0.03	1.0±0.03	1.0±0.03
1990-Winter-4th Parity	165	1.0±0.02	1.0±0.03	1.0±0.03	1.0±0.04
1990-Winter-5th Parity	100	1.0±0.02	1.0±0.03	1.1±0.04	1.0±0.04
1990-Winter-6th Parity	34	1.0±0.03	1.0±0.04	1.0±0.05	1.0±0.06
1991-Autumn-1st Parity	180	0.8±0.03	0.8±0.03	0.7±0.04	0.7±0.04
1991-Autumn-2nd Parity	29	0.9±0.04	0.9±0.05	0.8±0.06	0.8±0.07
1991-Autumn-3rd Parity	46	0.8±0.04	0.8±0.05	0.7±0.05	0.7±0.06
1991-Autumn-4th Parity	16	0.9±0.05	0.8±0.06	0.8±0.08	0.7±0.08
1991-Autumn-5th Parity	15	0.9±0.05	0.7±0.07	0.6±0.08	0.6±0.09
1991-Winter-1st Parity	9	1.1±0.06	1.0±0.08	0.9±1.10	0.7±1.11
1991-Winter-2nd Parity	27	0.9±0.04	0.9±0.05	0.8±0.06	0.8±0.07
1991-Winter-3rd Parity	19	0.9±0.04	0.8±0.06	0.7±0.07	0.6±0.07
1991-Winter-4th Parity	28	0.9±0.04	0.7±0.05	0.6±0.05	0.6±0.06
1992-Winter-1st Parity	101	0.8±0.03	0.8±0.04	0.8±0.05	0.7±0.05
1992-Winter-2nd Parity	133	0.8±0.03	0.8±0.03	0.7±0.04	0.7±0.05
1992-Winter-3rd Parity	77	0.8±0.03	0.8±0.04	0.8±0.05	0.7±0.05
1992-Winter-4th Parity	78	0.7±0.03	0.6±0.04	0.6±0.04	0.5±0.05
1992-Winter-5th Parity	17	0.9±0.05	0.8±0.06	0.7±0.07	0.7±0.08
<u>Californian:</u>					
1989-Autumn-1st Parity	223	1.0±0.02	1.1±0.03	1.1±0.03	1.0±0.04
1989-Autumn-2nd Parity	18	1.0±0.05	0.9±0.06	0.7±0.07	0.8±0.08
1989-Winter-1st Parity	16	1.0±0.05	1.0±0.07	1.0±0.08	1.0±0.09
1989-Winter-2nd Parity	58	1.0±0.03	1.0±0.04	1.0±0.05	0.9±0.06
1989-Winter-3rd Parity	162	1.1±0.02	1.0±0.03	1.0±0.04	1.0±0.04
1990-Autumn-1st Parity	25	1.0±0.04	1.0±0.05	1.0±0.06	1.0±0.07
1990-Autumn-2nd Parity	11	1.0±0.06	0.7±0.08	0.7±0.09	0.7±0.11
1990-Autumn-3rd Parity	11	1.0±0.06	1.0±0.08	1.0±0.10	1.0±0.11
1990-Autumn-4th Parity	27	1.0±0.04	0.9±0.05	0.9±0.06	0.9±0.07
1990-Autumn-5th Parity	9	1.1±0.07	1.1±0.08	1.2±0.10	1.2±0.11
1990-Autumn-6th Parity	113	1.0±0.02	1.0±0.03	1.0±0.04	1.0±0.05

Appendix 7. Cont.

Year-Season-Parity	NO	L6	L8	L10	L12
		MEAN±S.E	MEAN±S.E	MEAN±S.E	MEAN±S.E
1990-Winter-1st Parity	75	1.1±0.03	1.1±0.04	1.1±0.04	1.1±0.05
1990-Winter-2nd Parity	40	1.0±0.03	1.1±0.04	1.1±0.05	1.1±0.06
1990-Winter-3rd Parity	13	1.0±0.06	1.0±0.08	1.0±0.09	1.0±0.11
1990-Winter-4th Parity	47	1.0±0.03	1.0±0.04	1.1±0.05	1.1±0.06
1990-Winter-5th Parity	91	1.0±0.03	1.0±0.03	1.0±0.04	1.0±0.05
1990-Winter-6th Parity	39	1.1±0.03	1.1±0.04	1.1±0.05	1.2±0.06
1991-Autumn-1st Parity	9	1.1±0.06	1.1±0.08	1.1±0.09	1.1±0.11
1991-Autumn-2nd Parity	97	0.8±0.04	0.8±0.05	0.6±0.05	0.5±0.06
1991-Autumn-3rd Parity	26	0.8±0.05	0.7±0.06	0.6±0.07	0.6±0.09
1991-Autumn-4th Parity	9	0.8±0.07	0.8±0.09	0.7±1.11	0.7±0.12
1991-Autumn-5th Parity	31	0.7±0.05	0.6±0.06	0.6±0.07	0.5±0.09
1991-Winter-1st Parity	11	0.6±0.07	0.6±0.09	0.4±1.11	0.2±0.13
1991-Winter-2nd Parity	52	0.8±0.03	0.8±0.04	0.7±0.04	0.6±0.05
1991-Winter-3rd Parity	15	1.1±0.05	0.8±0.06	0.8±0.07	0.7±0.09
1991-Winter-4th Parity	20	0.7±0.04	0.7±0.06	0.7±0.07	0.6±0.08
1992-Winter-1st Parity	28	0.8±0.05	0.8±0.06	0.7±0.07	0.6±0.08
1992-Winter-2nd Parity	43	0.8±0.04	0.8±0.06	0.7±0.07	0.5±0.08
1992-Winter-3rd Parity	8	0.6±0.07	0.5±0.09	0.4±0.11	0.4±0.13
1992-Winter-4th Parity	32	0.8±0.04	0.7±0.06	0.7±0.07	0.6±0.08
1992-Winter-5th Parity	21	0.7±0.05	0.7±0.07	0.6±0.08	0.5±0.09

Appendix 8. Least square means of postweaning growth traits of males and females in New Zealand White and Californian rabbits (Model 1).

Trait	New Zealand White				Californian			
	Males		Females		Males		Females	
	No.	MEAN±S.E	No.	MEAN±S.E	No.	MEAN±S.E	No.	MEAN±S.E
Body Weight:								
W5	1227	573±13.8	1238	579±13.8	695	551±15.5	685	565±15.3
W6	1227	666±19.3	1238	671±19.4	695	610±19.1	685	639±18.2
W8	1173	944±18.1	1200	935±18.2	664	888±19.0	664	899±18.5
W10	1145	1246±22.1	1169	1236±22.3	646	1171±21.8	649	1177±21.1
W12	1120	1591±03.1	1131	1588±03.5	627	1490±40.5	633	1469±39.9
Daily Gain:								
DG1	1227	16.1±0.6	1238	15.7±0.8	695	14.3±0.5	685	14.6±0.5
DG2	1173	18.7±0.5	1200	18.3±0.5	664	16.6±0.6	664	16.4±0.5
DG3	1145	21.4±0.5	1169	21.2±0.5	646	19.2±0.5	649	19.0±0.5
DG4	1120	24.9±0.7	1131	24.8±0.7	627	23.4±0.8	633	22.6±0.8
Livability:								
L6	1227	0.94±0.01	1238	0.95±0.01	695	0.91±0.01	685	0.92±0.01
L8	1227	0.91±0.02	1238	0.91±0.02	695	0.87±0.01	685	0.88±0.01
L10	1227	0.89±0.02	1238	0.88±0.02	695	0.84±0.02	685	0.85±0.02
L12	1227	0.84±0.02	1238	0.85±0.02	695	0.81±0.02	685	0.81±0.02

Appendix 9. Least square means of postweaning body weights in different litter-size subgroups in New Zealand White and Californian rabbits (Model 1).

Litter size at birth	W5		W6		W8		W10		W12	
	NO.	MEAN±S.E	NO.	MEAN±S.E	NO.	MEAN±S.E	NO.	MEAN±S.E	NO.	MEAN±S.E
New Zealand White:										
≤ 2	29	694±39.7	29	799±39.5	28	1143±47.2	28	1436±65.2	28	1818±076.1
3	26	672±31.4	26	784±41.7	26	1004±49.3	25	1366±69.3	25	1621±080.9
4	151	594±27.5	151	688±23.9	146	960±25.4	140	1273±33.9	136	1619±040.1
5	208	610±26.5	208	700±22.8	204	994±23.6	201	1249±30.8	196	1640±036.5
6	439	569±14.5	439	666±20.3	425	922±19.8	412	1225±24.9	403	1585±029.5
7	513	555±14.4	513	646±20.1	496	915±19.4	482	1206±24.4	465	1574±028.9
8	489	532±14.4	489	617±20.2	457	896±19.5	446	1189±24.5	431	1569±029.1
9	314	496±25.4	314	576±21.4	302	826±21.6	294	1107±27.7	284	1440±032.9
10	177	526±27.4	177	608±23.9	172	883±25.4	171	1180±33.4	169	1528±039.3
≥11	119	508±29.0	119	601±25.8	117	851±28.1	115	1179±37.7	114	1502±044.2
Californians:										
≤ 2	13	780±43.0	13	848±90.4	13	1143±63.1	13	1431±79.9	13	1600±107.4
3	25	582±32.7	25	666±66.3	25	924±47.3	23	1287±61.3	23	1649 ±84.3
4	85	624±21.6	85	695±38.2	83	949±29.7	80	1267±36.7	78	1534 ±56.1
5	116	620±20.3	116	665±34.7	108	988±28.0	105	1255±34.4	103	1624 ±53.4
6	267	509±16.6	267	561±23.1	256	832±21.1	245	1084±24.9	233	1431 ±43.6
7	234	500±17.2	234	589±25.0	223	828±22.1	218	1102±26.1	211	1404 ±44.8
8	337	495± 6.3	337	573±22.0	324	827±20.5	317	1117±23.8	314	1420 ±42.4
9	196	512±18.0	196	575±27.7	190	860±23.5	189	1095±28.1	182	1445 ±46.9
10	51	422±26.3	51	498±50.5	50	747±37.2	50	986±46.3	48	1248 ±67.0
≥11	56	535±26.9	56	576±52.0	56	836±38.3	55	1114±48.1	55	1441 ±68.6

Appendix 10. Least square means of postweaning daily gains in different litter-size subgroups in New Zealand White and Californian rabbits (Model 1).

Litter size at birth	D66		D68		D610		D612	
	NO.	MEAN±S.E	NO.	MEAN±S.E	NO.	MEAN±S.E	No.	MEAN±S.E
New Zealand White:								
≤ 2	29	19.6±1.1	28	21.2±1.3	28	22.4±1.4	28	27.1±1.6
3	26	17.5±1.2	26	17.2±1.3	25	21.9±1.5	25	24.5±1.7
4	151	16.4±0.7	146	18.7±0.7	140	21.4±0.8	136	23.5±0.9
5	208	14.8±0.7	204	19.1±0.7	201	21.1±0.7	196	25.7±0.9
6	439	15.6±0.6	425	18.3±0.5	412	21.0±0.6	403	24.9±0.7
7	513	15.6±0.6	496	18.4±0.5	482	21.2±0.6	465	24.7±0.7
8	489	15.0±0.6	457	18.5±0.5	446	21.6±0.6	431	25.8±0.7
9	314	14.4±0.6	302	17.0±0.6	294	19.5±0.7	284	23.2±0.8
10	177	14.7±0.7	172	18.6±0.7	171	20.7±0.8	169	24.0±0.9
≥11	119	15.5±0.8	117	18.2±0.8	115	22.0±0.9	114	25.2±1.0
Californian :								
≤ 2	13	16.5±1.5	13	16.7±1.6	13	18.8±1.8	13	21.6±2.3
3	25	17.2±1.2	25	17.2±1.2	23	20.8±1.4	23	26.4±1.8
4	85	14.2±0.7	83	16.5±0.8	80	19.4±0.8	78	22.0±1.2
5	116	14.0±0.7	108	17.8±0.8	105	19.6±0.8	103	24.0±1.1
6	267	13.7±0.5	256	16.0±0.6	245	18.7±0.6	233	23.2±0.9
7	234	13.5±0.6	223	16.6±0.6	218	19.7±0.6	211	23.2±0.9
8	337	14.6±0.5	324	16.4±0.6	317	19.9±0.6	314	23.5±0.9
9	196	13.7±0.6	190	17.0±0.7	189	19.1±0.6	182	23.9±1.0
10	51	13.8±0.9	50	15.7±1.0	50	17.4±1.0	48	20.6±1.4
≥11	56	13.1±0.9	56	15.4±1.0	55	17.7±1.1	55	21.6±1.5

Appendix 11. Least square means of lavability in different litter-size subgroups of New Zealand White and Californian rabbits (Model 1).

Litter size at birth	L6		L8		L10		L12	
	NO.	MEAN±S.E	MEAN±S.E	MEAN±S.E	MEAN±S.E	MEAN±S.E	MEAN±S.E	MEAN±S.E
New Zealand White:								
≤ 2	29	0.94±0.03	0.93±0.04	0.92±0.05	0.91±0.06			
3	26	0.95±0.04	0.88±0.05	0.87±0.05	0.79±0.06			
4	151	0.94±0.02	0.89±0.02	0.85±0.03	0.82±0.03			
5	208	0.96±0.02	0.96±0.02	0.92±0.02	0.90±0.03			
6	439	0.96±0.01	0.92±0.02	0.90±0.02	0.86±0.02			
7	513	0.95±0.01	0.91±0.02	0.86±0.02	0.83±0.02			
8	489	0.94±0.01	0.91±0.02	0.87±0.02	0.84±0.02			
9	314	0.93±0.02	0.90±0.02	0.86±0.02	0.82±0.02			
10	177	0.94±0.02	0.91±0.02	0.89±0.03	0.87±0.03			
≥11	119	0.95±0.02	0.91±0.03	0.88±0.03	0.82±0.03			
Californian:								
≤ 2	13	0.92±0.05	0.90±0.06	0.91±0.08	0.81±0.09			
3	25	0.91±0.04	0.81±0.05	0.78±0.05	0.74±0.06			
4	85	0.92±0.02	0.87±0.03	0.86±0.03	0.82±0.04			
5	116	0.87±0.02	0.84±0.02	0.80±0.03	0.79±0.04			
6	267	0.90±0.01	0.86±0.02	0.81±0.02	0.78±0.03			
7	234	0.90±0.01	0.86±0.02	0.82±0.02	0.77±0.03			
8	337	0.92±0.01	0.88±0.02	0.86±0.02	0.83±0.03			
9	196	0.90±0.02	0.88±0.02	0.82±0.02	0.80±0.03			
10	51	0.94±0.03	0.92±0.03	0.91±0.04	0.86±0.05			
≥11	56	0.95±0.03	0.91±0.04	0.91±0.04	0.92±0.05			