

APPENDICES

APPENDIX A

Sex differences in the Chemical Composition (g) of the fresh whole body

Age in weeks	Sex	Water			Fat			Protein			Ash		
		L	H	R	L	H	R	L	H	R	L	H	R
3	M	5.99	9.74	7.76	0.68	1.27	1.06	1.43	2.27	1.87	0.19	0.34	0.26
	F	6.01	8.65	7.23	0.71	1.30	1.06	1.44	2.12	1.80	0.20	0.28	0.24
	M-F ⁺	N.S	**	N.S	N.S	N.S	N.S	N.S	N.S	N.S	N.S	*	N.S
4	M	8.81	14.48	11.53	0.88	1.56	1.34	2.10	3.52	2.91	0.30	0.49	0.39
	F	8.00	13.04	10.29	0.88	1.86	1.42	2.01	3.13	2.53	0.30	0.46	0.39
	M-F	N.S	*	N.S	N.S	N.S	N.S	N.S	N.S	*	N.S	N.S	N.S
5	M	10.49	17.62	14.31	1.12	2.18	1.92	2.82	4.72	3.91	0.41	0.66	0.57
	F	9.74	15.28	11.94	1.26	2.46	1.77	2.46	3.83	3.09	0.37	0.59	0.49
	M-F	N.S	**	**	N.S	N.S	N.S	**	**	**	N.S	N.S	*
6	M	12.01	19.83	15.54	1.43	2.98	2.05	3.38	5.39	4.34	0.49	0.74	0.63
	F	10.35	16.65	13.10	1.34	2.98	1.74	2.71	4.28	3.41	0.45	0.67	0.56
	M-F	**	**	**	N.S	N.S	N.S	**	**	**	N.S	*	*
7	M	12.43	21.06	16.35	1.46	3.44	2.05	3.58	5.74	4.66	0.51	0.85	0.67
	F	11.65	17.18	14.07	1.38	3.46	1.92	3.08	4.52	3.79	0.52	0.76	0.61
	M-F	N.S	**	**	N.S	N.S	N.S	**	**	**	N.S	N.S	*
8	M	13.48	21.64	16.94	1.92	3.64	2.74	3.87	6.23	4.98	0.58	0.88	0.72
	F	11.66	17.91	14.44	1.74	3.62	2.24	3.09	4.85	3.97	0.54	0.82	0.69
	M-F	**	**	**	N.S	N.S	*	**	**	**	N.S	*	N.S

+ t-test; * P<0.05; ** P<0.01

APPENDIX B

Sex differences in the Chemical Composition (g) of the carcass part of the fresh body

Age in weeks	Sex	Water			Fat			Protein			Ash		
		L	H	R	L	H	R	L	H	R	L	H	R
3	M	2.22	3.31	2.88	0.21	0.33	0.31	0.49	0.79	0.64	0.07	0.13	0.10
	F	2.10	3.11	2.78	0.21	0.35	0.34	0.50	0.74	0.65	0.08	0.12	0.10
	M-F ⁺	N.S	N.S	N.S	N.S	N.S	N.S	N.S	N.S	N.S	N.S	N.S	N.S
4	M	2.94	4.78	3.96	0.22	0.39	0.31	0.71	1.16	1.00	0.12	0.21	0.16
	F	2.75	4.50	3.67	0.23	0.46	0.35	0.71	1.09	0.92	0.12	0.20	0.18
	M-F	N.S	N.S	N.S	N.S	N.S	N.S	N.S	N.S	N.S	N.S	N.S	N.S
5	M	3.71	6.60	5.48	0.26	0.62	0.52	0.94	1.69	1.40	0.17	0.30	0.28
	F	3.76	5.53	4.36	0.30	0.57	0.42	0.86	1.39	1.11	0.16	0.28	0.22
	M-F	N.S	**	**	N.S	N.S	N.S	N.S	**	**	N.S	N.S	*
6	M	4.84	7.93	6.52	0.43	0.97	0.66	1.26	2.02	1.71	0.23	0.39	0.30
	F	4.02	6.29	5.09	0.33	0.74	0.46	1.05	1.61	1.31	0.21	0.34	0.26
	M-F	**	**	**	N.S	**	*	**	**	**	N.S	**	*
7	M	5.11	8.53	6.80	0.43	0.99	0.63	1.35	2.23	1.79	0.25	0.42	0.33
	F	4.70	6.93	5.64	0.39	0.86	0.53	1.20	1.77	1.46	0.26	0.39	0.30
	M-F	N.S	**	**	N.S	N.S	N.S	*	**	**	N.S	N.S	N.S
8	M	5.62	8.78	7.13	0.59	1.02	0.84	1.52	2.37	1.94	0.29	0.45	0.36
	F	4.67	7.13	5.85	0.46	0.85	0.61	1.23	1.87	1.55	0.26	0.43	0.34
	M-F	**	**	**	N.S	N.S	N.S	**	**	**	*	N.S	N.S

+

t-test; * P<0.05; ** P<0.01

APPENDIX C

Sex differences in the Chemical Composition (g) of the non-carass part of the fresh body

Age in weeks	Sex	Water			Fat			Protein			Ash		
		L	H	R	L	H	R	L	H	R	L	H	R
3	M	3.77	6.43	4.88	0.47	0.94	0.75	0.94	1.48	1.23	0.12	0.20	0.15
	F	3.91	5.54	4.45	0.50	0.95	0.72	0.94	1.38	1.14	0.13	0.16	0.14
	M-F ⁺	N.S	**	*	N.S	N.S	N.S	N.S	*	*	N.S	**	N.S
4	M	5.86	9.70	7.56	0.66	1.17	1.03	1.39	2.36	1.91	0.18	0.27	0.23
	F	5.25	8.54	6.62	0.66	1.39	1.06	1.30	2.04	1.60	0.18	0.26	0.21
	M-F	N.S	*	*	N.S	*	N.S	N.S	**	**	N.S	N.S	N.S
5	M	6.78	11.02	8.84	0.85	1.56	1.40	1.88	3.03	2.51	0.24	0.36	0.30
	F	6.37	9.75	7.58	0.96	1.90	1.35	1.60	2.45	1.99	0.21	0.31	0.27
	M-F	N.S	**	**	N.S	*	N.S	**	**	**	*	**	*
6	M	7.17	11.90	9.01	1.00	2.00	1.42	2.12	3.37	2.63	0.26	0.35	0.33
	F	6.32	10.37	8.01	1.01	2.24	1.28	1.66	2.67	2.10	0.24	0.33	0.30
	M-F	*	**	*	N.S	N.S	N.S	**	**	**	N.S	N.S	N.S
7	M	7.32	12.53	9.55	1.03	2.45	1.42	2.23	3.51	2.86	0.26	0.43	0.34
	F	6.96	10.25	8.43	0.99	2.60	1.39	1.88	2.75	2.33	0.26	0.37	0.31
	M-F	N.S	**	*	N.S	N.S	N.S	**	**	**	N.S	**	*
8	M	7.86	12.86	9.31	1.33	2.61	1.90	2.34	3.86	3.04	0.29	0.43	0.36
	F	6.95	10.77	8.60	1.28	2.77	1.62	1.86	2.98	2.43	0.28	0.39	0.35
	M-F	**	**	**	N.S	N.S	N.S	**	**	**	N.S	**	N.S

+

t-test; * p<0.05; ** p<0.01

APPENDIX D

The effect of sex on the fat percentage of the fresh body

Age in weeks	Sex	Whole Body				Carcass part				Non-Carcass part			
		L	H	R	Total	L	H	R	Total	L	H	R	Total
3	M	8.12	9.30	9.68	9.03	6.93	7.18	7.89	7.33	8.80	10.36	10.68	9.94
	F	8.40	10.52	10.32	9.75	7.10	8.20	8.88	8.06	9.09	11.78	11.20	10.69
	M-F ⁺	N.S	*	N.S	**	N.S	*	*	**	N.S	*	N.S	*
4	M	7.15	7.56	8.21	7.64	5.34	5.81	5.67	5.61	8.05	8.44	9.49	8.56
	F	7.73	9.97	9.72	9.14	5.72	7.30	6.92	6.65	9.75	11.35	11.22	10.44
	M-F	N.S	**	N.S	**	N.S	*	N.S	*	N.S	**	N.S	**
5	M	7.37	8.66	9.18	8.40	5.07	6.73	6.71	6.17	8.59	9.77	10.63	9.66
	F	9.11	11.15	10.21	10.16	6.49	7.38	6.91	6.93	10.47	13.17	12.05	11.90
	M-F	*	**	N.S	**	*	N.S	N.S	N.S	N.S	**	N.S	**
6	M	8.29	10.16	9.16	9.20	6.36	8.54	7.13	7.34	9.49	11.15	10.56	10.40
	F	9.06	12.07	9.20	10.11	5.96	8.22	6.40	6.86	10.95	14.32	10.89	12.05
	M-F	N.S	*	N.S	N.S	N.S	N.S	N.S	N.S	N.S	**	N.S	**
7	M	8.14	11.02	8.56	9.24	6.06	8.09	6.53	6.89	9.50	12.91	9.92	10.78
	F	8.24	13.29	9.44	10.32	5.94	8.58	6.68	7.07	9.72	16.26	11.19	12.39
	M-F	N.S	**	N.S	*	N.S	N.S	N.S	N.S	N.S	**	N.S	*
8	M	9.67	11.12	10.81	10.54	7.37	8.08	8.17	7.88	11.22	13.07	12.60	12.30
	F	10.11	13.34	10.40	11.28	6.89	8.28	7.37	7.52	12.16	16.43	12.32	13.64
	M-F	N.S	**	N.S	N.S	N.S	N.S	N.S	N.S	N.S	**	N.S	*

⁺t - test; * P<0.05; ** P<0.01

APPENDIX E

The effect of sex on the fat percentage of the dry body

Age in weeks	Sex	Whole body				Carcass part				Non-carcass part			
		L	H	R	Total	L	H	R	Total	L	H	R	Total
3	M	29.16	32.61	33.19	31.66	26.68	26.13	29.59	27.47	30.39	35.66	35.06	33.70
	F	29.94	35.03	34.34	33.10	25.97	29.18	31.33	28.82	31.90	37.85	36.01	35.25
	M-F ⁺	N.S	*	N.S	*	N.S	*	N.S	N.S	N.S	N.S	N.S	N.S
4	M	26.34	27.28	28.37	27.34	20.23	21.49	21.00	20.91	29.22	30.00	31.68	30.30
	F	26.95	33.81	32.69	31.15	20.42	25.84	24.19	23.48	30.11	37.57	36.97	34.88
	M-F	N.S	**	*	**	N.S	*	N.S	*	N.S	**	*	**
5	M	25.00	28.63	29.53	27.72	18.56	26.65	23.22	21.81	28.09	31.22	32.80	30.71
	F	30.72	35.65	32.80	33.06	23.00	25.48	23.89	24.12	34.38	40.49	37.14	37.34
	M-F	**	**	N.S	**	*	N.S	N.S	*	*	**	*	**
6	M	26.92	32.05	29.20	29.39	22.22	28.25	24.49	24.98	29.64	34.09	32.07	31.87
	F	29.82	37.20	30.35	32.46	20.98	27.27	22.53	23.60	34.65	42.28	34.58	37.17
	M-F	N.S	*	N.S	*	N.S	N.S	N.S	N.S	*	**	N.S	**
7	M	26.32	34.08	27.41	29.27	21.23	26.99	22.56	23.59	29.56	38.13	30.28	32.56
	F	27.50	39.04	30.42	32.32	21.07	28.13	23.17	24.13	31.26	44.78	34.52	36.85
	M-F	N.S	**	N.S	**	N.S	N.S	N.S	N.S	N.S	**	*	**
8	M	29.97	33.45	32.44	31.95	24.51	26.46	26.68	25.88	33.25	37.33	35.84	35.48
	F	31.93	38.71	31.97	34.22	23.39	26.86	24.44	24.90	36.69	44.87	36.22	39.26
	M-F	N.S	**	N.S	*	N.S	N.S	N.S	N.S	N.S	**	N.S	**

⁺ t-test; * P<0.05; ** P<0.01

APPENDIX F

Least-squares averages $\pm$ s.e. for the chemical constituents expressed as percentages of the fresh whole body

Trait/Line	3 weeks	4 weeks	5 weeks	6 weeks	7 weeks	8 weeks
<u>Water</u>						
L	71.83 $\pm$ 0.33 ^a	72.03 $\pm$ 0.36 ^a	70.46 $\pm$ 0.37 ^a	69.25 $\pm$ 0.34 ^a	69.84 $\pm$ 0.40 ^a	68.19 $\pm$ 0.27 ^a
H	70.41 $\pm$ 0.36 ^b	71.27 $\pm$ 0.37 ^{ab}	69.11 $\pm$ 0.37 ^b	68.09 $\pm$ 0.36 ^b	66.90 $\pm$ 0.35 ^b	66.18 $\pm$ 0.30 ^b
R	68.64 $\pm$ 0.37 ^c	70.50 $\pm$ 0.38 ^{bc}	68.81 $\pm$ 0.37 ^b	68.82 $\pm$ 0.37 ^{ab}	69.28 $\pm$ 0.37 ^a	67.09 $\pm$ 0.25 ^c
<u>Fat</u>						
L	8.24 $\pm$ 0.36 ^a	7.41 $\pm$ 0.39 ^a	8.23 $\pm$ 0.40 ^a	8.62 $\pm$ 0.37 ^a	8.23 $\pm$ 0.44 ^a	9.88 $\pm$ 0.30 ^a
H	9.85 $\pm$ 0.39 ^b	8.74 $\pm$ 0.40 ^b	9.86 $\pm$ 0.40 ^b	11.11 $\pm$ 0.39 ^b	12.13 $\pm$ 0.38 ^b	12.17 $\pm$ 0.33 ^b
R	9.75 $\pm$ 0.40 ^b	8.90 $\pm$ 0.41 ^b	9.66 $\pm$ 0.40 ^b	9.15 $\pm$ 0.40 ^a	9.02 $\pm$ 0.40 ^a	10.54 $\pm$ 0.27 ^a
<u>Protein</u>						
L	17.22 $\pm$ 0.18 ^a	17.64 $\pm$ 0.19 ^a	18.45 $\pm$ 0.20 ^a	18.84 $\pm$ 0.18 ^a	19.29 $\pm$ 0.22 ^a	18.85 $\pm$ 0.15 ^a
H	16.85 $\pm$ 0.19 ^a	17.23 $\pm$ 0.20 ^a	17.96 $\pm$ 0.20 ^a	18.03 $\pm$ 0.19 ^b	17.93 $\pm$ 0.19 ^b	18.52 $\pm$ 0.16 ^b
R	16.80 $\pm$ 0.20 ^a	17.54 $\pm$ 0.20 ^a	18.32 $\pm$ 0.20 ^a	18.58 $\pm$ 0.20 ^a	19.17 $\pm$ 0.20 ^a	19.07 $\pm$ 0.14 ^a
<u>Asn</u>						
L	2.37 $\pm$ 0.05 ^a	2.63 $\pm$ 0.06 ^a	2.73 $\pm$ 0.06 ^a	2.90 $\pm$ 0.06 ^a	2.99 $\pm$ 0.07 ^a	3.05 $\pm$ 0.05 ^a
H	2.35 $\pm$ 0.06 ^a	2.48 $\pm$ 0.06 ^a	2.63 $\pm$ 0.06 ^a	2.66 $\pm$ 0.06 ^a	2.84 $\pm$ 0.06 ^a	2.85 $\pm$ 0.05 ^b
R	2.27 $\pm$ 0.06 ^a	2.50 $\pm$ 0.06 ^a	2.79 $\pm$ 0.06 ^a	2.88 $\pm$ 0.06 ^a	2.92 $\pm$ 0.06 ^a	3.03 $\pm$ 0.04 ^a

Dissimilar lower case letters indicate significant differences between lines (P<0.05)

APPENDIX C

Least-squares averages $\pm$ s.e. for the chemical constituents expressed as percentages of the carcass part of the fresh body

Trait/Line	3 weeks	4 weeks	5 weeks	6 weeks	7 weeks	8 weeks
<u>Water</u>						
L	73.449 $\pm$ 0.269 ^a	72.995 $\pm$ 0.290 ^a	72.464 $\pm$ 0.298 ^a	71.623 $\pm$ 0.273 ^a	71.638 $\pm$ 0.323 ^a	70.313 $\pm$ 0.222 ^a
H	72.269 $\pm$ 0.290 ^b	72.508 $\pm$ 0.297 ^a	71.404 $\pm$ 0.297 ^b	70.099 $\pm$ 0.290 ^b	69.897 $\pm$ 0.284 ^b	69.473 $\pm$ 0.243 ^b
R	72.441 $\pm$ 0.297 ^b	72.307 $\pm$ 0.305 ^a	71.376 $\pm$ 0.297 ^b	71.306 $\pm$ 0.298 ^a	71.191 $\pm$ 0.298 ^a	69.753 $\pm$ 0.200 ^b
<u>Fat</u>						
L	7.049 $\pm$ 0.285 ^a	5.520 $\pm$ 0.308 ^a	5.820 $\pm$ 0.316 ^a	6.144 $\pm$ 0.290 ^a	6.007 $\pm$ 0.343 ^a	7.128 $\pm$ 0.236 ^a
H	7.690 $\pm$ 0.308 ^{ab}	6.554 $\pm$ 0.316 ^b	7.056 $\pm$ 0.316 ^b	8.378 $\pm$ 0.308 ^b	8.335 $\pm$ 0.301 ^b	8.169 $\pm$ 0.258 ^b
R	8.383 $\pm$ 0.316 ^b	6.288 $\pm$ 0.324 ^b	6.810 $\pm$ 0.316 ^b	6.767 $\pm$ 0.316 ^a	6.601 $\pm$ 0.316 ^a	7.753 $\pm$ 0.212 ^{ab}
<u>Protein</u>						
L	16.972 $\pm$ 0.165 ^a	18.280 $\pm$ 0.178 ^a	18.418 $\pm$ 0.183 ^a	18.676 $\pm$ 0.168 ^a	18.630 $\pm$ 0.198 ^a	18.806 $\pm$ 0.136 ^a
H	17.213 $\pm$ 0.178 ^{ab}	17.632 $\pm$ 0.182 ^b	18.093 $\pm$ 0.182 ^a	17.901 $\pm$ 0.178 ^b	18.068 $\pm$ 0.174 ^b	18.499 $\pm$ 0.149 ^a
R	16.606 $\pm$ 0.182 ^{ac}	18.200 $\pm$ 0.187 ^a	18.202 $\pm$ 0.182 ^a	18.499 $\pm$ 0.183 ^a	18.563 $\pm$ 0.183 ^a	18.699 $\pm$ 0.122 ^a
<u>Asn</u>						
L	2.530 $\pm$ 0.082 ^a	3.205 $\pm$ 0.089 ^a	3.298 $\pm$ 0.091 ^a	3.558 $\pm$ 0.084 ^a	3.725 $\pm$ 0.099 ^a	3.753 $\pm$ 0.068 ^a
H	2.828 $\pm$ 0.089 ^b	3.307 $\pm$ 0.091 ^a	3.447 $\pm$ 0.091 ^a	3.622 $\pm$ 0.089 ^{ab}	3.701 $\pm$ 0.087 ^a	3.859 $\pm$ 0.075 ^a
R	2.570 $\pm$ 0.091 ^a	3.205 $\pm$ 0.094 ^a	3.613 $\pm$ 0.091 ^b	3.428 $\pm$ 0.091 ^{ac}	3.645 $\pm$ 0.091 ^a	3.794 $\pm$ 0.061 ^a

Dissimilar lower case letters indicate significant differences between lines (P<0.05)

APPENDIX H

Least-squares averages $\pm$ s.e. for the chemical constituents expressed as percentages of the non-carcase part of the fresh body

Trait/Line	3 weeks	4 weeks	5 weeks	6 weeks	7 weeks	8 weeks
<u>Water</u>						
L	71.289 $\pm$ 0.401 ^a	71.839 $\pm$ 0.434 ^a	69.571 $\pm$ 0.445 ^a	68.220 $\pm$ 0.408 ^a	68.254 $\pm$ 0.482 ^a	66.836 $\pm$ 0.332 ^a
H	70.018 $\pm$ 0.434 ^b	70.929 $\pm$ 0.444 ^{ab}	68.318 $\pm$ 0.444 ^b	66.990 $\pm$ 0.434 ^b	65.210 $\pm$ 0.424 ^b	64.419 $\pm$ 0.363 ^b
R	69.262 $\pm$ 0.444 ^b	70.160 $\pm$ 0.456 ^b	67.770 $\pm$ 0.444 ^b	67.851 $\pm$ 0.445 ^{ab}	67.589 $\pm$ 0.445 ^c	65.645 $\pm$ 0.298 ^c
<u>Fat</u>						
L	8.935 $\pm$ 0.455 ^a	8.391 $\pm$ 0.492 ^a	9.540 $\pm$ 0.505 ^a	10.189 $\pm$ 0.463 ^a	9.637 $\pm$ 0.547 ^a	11.677 $\pm$ 0.377 ^a
H	11.050 $\pm$ 0.492 ^b	9.895 $\pm$ 0.504 ^b	11.471 $\pm$ 0.504 ^b	12.737 $\pm$ 0.492 ^b	14.586 $\pm$ 0.481 ^b	14.725 $\pm$ 0.412 ^b
R	10.938 $\pm$ 0.504 ^b	10.339 $\pm$ 0.518 ^b	11.344 $\pm$ 0.504 ^b	10.751 $\pm$ 0.505 ^a	10.530 $\pm$ 0.505 ^a	12.409 $\pm$ 0.339 ^a
<u>Protein</u>						
L	17.483 $\pm$ 0.230 ^a	17.414 $\pm$ 0.249 ^a	18.460 $\pm$ 0.255 ^a	19.078 $\pm$ 0.234 ^a	19.620 $\pm$ 0.277 ^a	18.893 $\pm$ 0.191 ^a
H	16.808 $\pm$ 0.249 ^b	17.101 $\pm$ 0.255 ^a	18.019 $\pm$ 0.255 ^a	18.191 $\pm$ 0.249 ^b	17.900 $\pm$ 0.243 ^b	18.609 $\pm$ 0.208 ^a
R	17.607 $\pm$ 0.255 ^a	17.346 $\pm$ 0.262 ^a	18.539 $\pm$ 0.255 ^a	18.842 $\pm$ 0.255 ^{ab}	19.454 $\pm$ 0.255 ^a	19.406 $\pm$ 0.171 ^b
<u>Ash</u>						
L	2.293 $\pm$ 0.057 ^a	2.355 $\pm$ 0.061 ^a	2.430 $\pm$ 0.063 ^a	2.513 $\pm$ 0.058 ^a	2.489 $\pm$ 0.068 ^a	2.594 $\pm$ 0.047 ^a
H	2.125 $\pm$ 0.061 ^b	2.076 $\pm$ 0.063 ^b	2.192 $\pm$ 0.063 ^b	2.081 $\pm$ 0.061 ^b	2.304 $\pm$ 0.060 ^b	2.248 $\pm$ 0.051 ^b
R	2.193 $\pm$ 0.063 ^{ab}	2.156 $\pm$ 0.064 ^b	2.348 $\pm$ 0.063 ^{ab}	2.556 $\pm$ 0.063 ^a	2.427 $\pm$ 0.063 ^{ab}	2.541 $\pm$ 0.042 ^a

Dissimilar lower case letters indicated significant differences between lines (P<0.05)

APPENDIX I

Least squares averages $\pm$ s.e. for the chemical constituents expressed as percentages of dry whole body

Trait/Line	3 weeks	4 weeks	5 weeks	6 weeks	7 weeks	8 weeks
<u>Fat</u>						
L	29.535 $\pm$ 0.890 ^a	26.590 $\pm$ 0.962 ^a	29.917 $\pm$ 0.987 ^a	28.318 $\pm$ 0.905 ^a	26.941 $\pm$ 1.069 ^a	30.916 $\pm$ 0.737 ^a
H	33.793 $\pm$ 0.962 ^b	30.547 $\pm$ 0.985 ^b	32.138 $\pm$ 0.985 ^b	34.621 $\pm$ 0.962 ^b	36.560 $\pm$ 0.939 ^b	36.068 $\pm$ 0.805 ^b
R	33.766 $\pm$ 0.985 ^b	30.490 $\pm$ 0.011 ^b	31.167 $\pm$ 0.985 ^b	29.810 $\pm$ 0.987 ^a	28.855 $\pm$ 0.987 ^a	32.108 $\pm$ 0.661 ^a
<u>Protein</u>						
L	61.958 $\pm$ 0.785 ^a	63.882 $\pm$ 0.848 ^a	62.828 $\pm$ 0.871 ^a	62.113 $\pm$ 0.798 ^a	63.253 $\pm$ 0.943 ^a	59.437 $\pm$ 0.650 ^a
H	58.098 $\pm$ 0.848 ^b	60.731 $\pm$ 0.869 ^b	59.203 $\pm$ 0.869 ^b	56.977 $\pm$ 0.848 ^b	54.784 $\pm$ 0.828 ^b	55.406 $\pm$ 0.710 ^b
R	58.339 $\pm$ 0.869 ^b	60.851 $\pm$ 0.892 ^b	59.751 $\pm$ 0.869 ^b	60.773 $\pm$ 0.871 ^a	61.747 $\pm$ 0.871 ^a	58.562 $\pm$ 0.583 ^a
<u>Asn</u>						
L	8.508 $\pm$ 0.193 ^a	9.529 $\pm$ 0.209 ^a	9.255 $\pm$ 0.214 ^a	9.568 $\pm$ 0.197 ^a	9.805 $\pm$ 0.232 ^a	9.647 $\pm$ 0.160 ^a
H	8.109 $\pm$ 0.209 ^{ab}	8.721 $\pm$ 0.214 ^b	8.659 $\pm$ 0.214 ^b	8.401 $\pm$ 0.209 ^b	8.654 $\pm$ 0.204 ^b	8.527 $\pm$ 0.174 ^b
R	7.896 $\pm$ 0.214 ^{bc}	8.659 $\pm$ 0.220 ^b	9.084 $\pm$ 0.213 ^{ab}	9.417 $\pm$ 0.214 ^a	9.397 $\pm$ 0.214 ^a	9.331 $\pm$ 0.144 ^a

Dissimilar lower case letters indicate significant differences between lines (P<0.05)

APPENDIX J

Least squares averages $\pm$ s.e. for the chemical constituents expressed as percentages of the carcass part of the dry body

Trait/Line	3 weeks	4 weeks	5 weeks	6 weeks	7 weeks	8 weeks
<u>Fat</u>						
L	26.474 $\pm$ 0.811 ^a	20.279 $\pm$ 0.877 ^a	20.906 $\pm$ 0.900 ^a	21.550 $\pm$ 0.826 ^a	21.158 $\pm$ 0.975 ^a	23.929 $\pm$ 0.672 ^a
H	27.668 $\pm$ 0.877 ^a	23.664 $\pm$ 0.898 ^b	24.564 $\pm$ 0.898 ^b	27.747 $\pm$ 0.877 ^b	27.560 $\pm$ 0.857 ^b	26.643 $\pm$ 0.734 ^b
R	30.460 $\pm$ 0.898 ^b	22.566 $\pm$ 0.922 ^{ab}	23.534 $\pm$ 0.898 ^b	23.512 $\pm$ 0.900 ^{ac}	22.837 $\pm$ 0.900 ^a	25.509 $\pm$ 0.603 ^b
<u>Protein</u>						
L	64.015 $\pm$ 0.728 ^a	67.828 $\pm$ 0.787 ^a	67.124 $\pm$ 0.808 ^a	65.908 $\pm$ 0.741 ^a	65.700 $\pm$ 0.875 ^a	63.382 $\pm$ 0.603 ^a
H	62.128 $\pm$ 0.787 ^a	64.288 $\pm$ 0.806 ^b	63.383 $\pm$ 0.806 ^b	60.098 $\pm$ 0.787 ^b	60.125 $\pm$ 0.769 ^b	60.707 $\pm$ 0.659 ^b
R	60.120 $\pm$ 0.806 ^{ab}	65.875 $\pm$ 0.828 ^b	63.872 $\pm$ 0.806 ^b	64.527 $\pm$ 0.808 ^a	64.506 $\pm$ 0.808 ^a	61.916 $\pm$ 0.541 ^{ab}
<u>Ash</u>						
L	9.512 $\pm$ 0.291 ^a	11.892 $\pm$ 0.315 ^a	11.970 $\pm$ 0.323 ^a	12.543 $\pm$ 0.296 ^a	13.143 $\pm$ 0.350 ^a	12.688 $\pm$ 0.241 ^a
H	10.206 $\pm$ 0.315 ^a	12.051 $\pm$ 0.322 ^a	12.053 $\pm$ 0.322 ^a	12.154 $\pm$ 0.315 ^a	12.314 $\pm$ 0.307 ^a	12.651 $\pm$ 0.263 ^a
R	9.421 $\pm$ 0.322 ^a	11.560 $\pm$ 0.331 ^a	12.574 $\pm$ 0.322 ^a	11.962 $\pm$ 0.323 ^a	12.658 $\pm$ 0.323 ^a	12.575 $\pm$ 0.216 ^a

Dissimilar lower case letters indicate significant differences between lines (P<0.05)

APPENDIX K

Least-squares averages $\pm$ s.e. for the chemical constituents expressed as percentages of the non-carass part of the dry body

Trait/Line	3 weeks	4 weeks	5 weeks	6 weeks	7 weeks	8 weeks
<u>Fat</u>						
L	31.055 $\pm$ 1.035 ^a	29.598 $\pm$ 1.119 ^a	31.262 $\pm$ 1.149 ^a	31.977 $\pm$ 1.053 ^a	30.300 $\pm$ 1.244 ^a	34.929 $\pm$ 0.857 ^a
H	36.707 $\pm$ 1.119 ^b	33.786 $\pm$ 1.146 ^b	35.859 $\pm$ 1.146 ^b	38.190 $\pm$ 1.119 ^b	41.451 $\pm$ 1.093 ^b	41.061 $\pm$ 0.937 ^b
R	35.535 $\pm$ 1.146 ^b	34.258 $\pm$ 1.177 ^b	34.970 $\pm$ 1.146 ^b	33.383 $\pm$ 1.149 ^a	32.322 $\pm$ 1.149 ^a	35.914 $\pm$ 0.770 ^a
<u>Protein</u>						
L	60.938 $\pm$ 0.924 ^a	62.005 $\pm$ 0.999 ^a	60.771 $\pm$ 1.025 ^a	60.099 $\pm$ 0.940 ^a	61.838 $\pm$ 1.111 ^a	57.196 $\pm$ 0.765 ^a
H	56.196 $\pm$ 0.999 ^b	59.052 $\pm$ 1.023 ^b	57.182 $\pm$ 1.023 ^b	55.456 $\pm$ 0.999 ^b	51.885 $\pm$ 0.976 ^b	52.597 $\pm$ 0.836 ^b
R	57.329 $\pm$ 1.023 ^b	58.488 $\pm$ 1.050 ^b	57.720 $\pm$ 1.023 ^b	58.650 $\pm$ 1.025 ^a	60.169 $\pm$ 1.025 ^a	56.641 $\pm$ 0.687 ^a
<u>Ash</u>						
L	8.006 $\pm$ 0.199 ^a	8.398 $\pm$ 0.215 ^a	7.968 $\pm$ 0.221 ^a	7.923 $\pm$ 0.203 ^a	7.861 $\pm$ 0.239 ^a	7.874 $\pm$ 0.165 ^a
H	7.098 $\pm$ 0.215 ^b	7.161 $\pm$ 0.221 ^b	6.959 $\pm$ 0.221 ^b	6.355 $\pm$ 0.215 ^b	6.663 $\pm$ 0.210 ^b	6.343 $\pm$ 0.180 ^b
R	7.132 $\pm$ 0.221 ^b	7.254 $\pm$ 0.226 ^b	7.310 $\pm$ 0.221 ^b	7.967 $\pm$ 0.221 ^a	7.509 $\pm$ 0.221 ^a	7.446 $\pm$ 0.148 ^a

Dissimilar lower case letters indicate significant differences between lines (P<0.05)

APPENDIX L

Least-squares averages for the chemical constituents expressed as percentages of the fat-free whole body

Trait/Line	3 weeks	4 weeks	5 weeks	6 weeks	7 weeks	8 weeks
<u>Water</u>						
L	78.57 $\pm$ 0.18 ^a	78.04 $\pm$ 0.20 ^a	76.93 $\pm$ 0.20 ^a	76.11 $\pm$ 0.19 ^a	75.81 $\pm$ 0.22 ^a	75.69 $\pm$ 0.15 ^a
H	78.57 $\pm$ 0.20 ^a	78.34 $\pm$ 0.20 ^a	77.05 $\pm$ 0.20 ^a	76.71 $\pm$ 0.20 ^b	76.31 $\pm$ 0.19 ^a	75.61 $\pm$ 0.17 ^{ab}
R	78.24 $\pm$ 0.20 ^a	77.86 $\pm$ 0.21 ^a	76.51 $\pm$ 0.20 ^a	76.24 $\pm$ 0.20 ^{ab}	75.83 $\pm$ 0.20 ^a	75.22 $\pm$ 0.14 ^b
<u>Protein</u>						
L	18.84 $\pm$ 0.17 ^a	19.12 $\pm$ 0.18 ^a	20.10 $\pm$ 0.18 ^a	20.70 $\pm$ 0.17 ^a	20.94 $\pm$ 0.20 ^a	20.92 $\pm$ 0.14 ^a
H	18.80 $\pm$ 0.18 ^a	18.94 $\pm$ 0.18 ^a	20.02 $\pm$ 0.18 ^a	20.30 $\pm$ 0.18 ^a	20.45 $\pm$ 0.18 ^a	21.13 $\pm$ 0.15 ^{ab}
R	19.17 $\pm$ 0.18 ^a	19.37 $\pm$ 0.19 ^a	20.38 $\pm$ 0.18 ^a	20.57 $\pm$ 0.18 ^a	20.98 $\pm$ 0.18 ^a	21.38 $\pm$ 0.12 ^{bc}
<u>Ash</u>						
L	2.59 $\pm$ 0.06 ^a	2.85 $\pm$ 0.06 ^a	2.97 $\pm$ 0.06 ^a	3.19 $\pm$ 0.06 ^a	3.24 $\pm$ 0.07 ^a	3.39 $\pm$ 0.05 ^a
H	2.63 $\pm$ 0.06 ^a	2.72 $\pm$ 0.06 ^a	2.93 $\pm$ 0.06 ^{ab}	2.99 $\pm$ 0.06 ^b	3.24 $\pm$ 0.06 ^a	3.26 $\pm$ 0.05 ^b
R	2.59 $\pm$ 0.06 ^a	2.76 $\pm$ 0.07 ^a	3.11 $\pm$ 0.06 ^{ac}	3.19 $\pm$ 0.06 ^a	3.19 $\pm$ 0.06 ^a	3.40 $\pm$ 0.04 ^a

Dissimilar lower case letters indicate significant differences between lines (P<0.05)

APPENDIX M

Least-squares averages for the chemical constituents expressed as percentages of the carcass part of the fat-free body

Trait/Line	3 weeks	4 weeks	5 weeks	6 weeks	7 weeks	8 weeks
<u>Water</u>						
L	79.02±0.18 ^a	77.26±0.19 ^a	76.94±0.20 ^a	76.31±0.18 ^a	76.22±0.22 ^a	75.71±0.15 ^a
H	78.29±0.19 ^b	77.60±0.20 ^a	76.82±0.20 ^a	76.51±0.19 ^a	76.25±0.19 ^a	75.65±0.16 ^a
R	79.06±0.20 ^a	77.16±0.20 ^a	76.59±0.20 ^a	76.48±0.20 ^a	76.22±0.20 ^a	75.62±0.13 ^a
<u>Protein</u>						
L	18.26±0.16 ^a	19.35±0.18 ^a	19.56±0.18 ^a	19.90±0.17 ^a	19.82±0.20 ^a	20.25±0.14 ^a
H	18.65±0.18 ^{ab}	18.86±0.18 ^{ab}	19.47±0.18 ^a	19.54±0.18 ^a	19.71±0.17 ^a	20.14±0.15 ^a
R	18.13±0.18 ^{ac}	19.42±0.19 ^{ac}	19.53±0.18 ^a	19.84±0.18 ^a	19.88±0.18 ^a	20.27±0.12 ^a
<u>Ash</u>						
L	2.72±0.9 ^a	3.39±0.10 ^a	3.50±0.10 ^a	3.79±0.09 ^a	3.96±0.11 ^a	4.04±0.07 ^a
H	3.06±0.10 ^b	3.54±0.10 ^a	3.71±0.10 ^{ab}	3.95±0.10 ^{ab}	4.04±0.09 ^a	4.20±0.08 ^a
R	2.80±0.10 ^a	3.42±0.10 ^a	3.88±0.10 ^b	3.67±0.10 ^{ac}	3.90±0.10 ^a	4.11±0.07 ^a

Dissimilar lower case letters indicate significant differences between lines (P<0.05)

APPENDIX N

Least-squares averages for the chemical constituents expressed as percentages of the non-car cass part of the fat-free body

Trait/Line	3 weeks	4 weeks	5 weeks	6 weeks	7 weeks	8 weeks
<u>Water</u>						
L	78.28 $\pm$ 0.25 ^a	78.42 $\pm$ 0.27 ^a	76.84 $\pm$ 0.28 ^a	75.97 $\pm$ 0.26 ^a	75.53 $\pm$ 0.30 ^a	75.68 $\pm$ 0.21 ^a
H	78.710 $\pm$ 0.27 ^{ab}	78.73 $\pm$ 0.28 ^a	77.19 $\pm$ 0.28 ^a	76.79 $\pm$ 0.27 ^b	76.35 $\pm$ 0.26 ^b	75.58 $\pm$ 0.23 ^a
R	77.77 $\pm$ 0.28 ^{ac}	78.24 $\pm$ 0.28 ^a	76.43 $\pm$ 0.28 ^a	76.04 $\pm$ 0.28 ^{ab}	75.55 $\pm$ 0.28 ^a	74.94 $\pm$ 0.19 ^b
<u>Protein</u>						
L	19.20 $\pm$ 0.23 ^a	19.01 $\pm$ 0.25 ^a	20.38 $\pm$ 0.26 ^a	21.23 $\pm$ 0.24 ^a	21.70 $\pm$ 0.28 ^a	21.38 $\pm$ 0.19 ^a
H	18.90 $\pm$ 0.25 ^{ab}	18.97 $\pm$ 0.26 ^a	20.34 $\pm$ 0.26 ^a	20.83 $\pm$ 0.25 ^a	24.95 $\pm$ 0.24 ^b	21.78 $\pm$ 0.21 ^{ab}
R	19.77 $\pm$ 0.26 ^{ac}	19.35 $\pm$ 0.26 ^a	20.92 $\pm$ 0.26 ^a	21.10 $\pm$ 0.26 ^a	21.74 $\pm$ 0.26 ^a	22.16 $\pm$ 0.17 ^{bc}
<u>Ash</u>						
L	2.52 $\pm$ 0.06 ^a	2.57 $\pm$ 0.07 ^a	2.68 $\pm$ 0.07 ^a	2.80 $\pm$ 0.06 ^a	2.75 $\pm$ 0.07 ^a	2.94 $\pm$ 0.05 ^a
H	2.39 $\pm$ 0.07 ^a	2.30 $\pm$ 0.07 ^b	2.48 $\pm$ 0.07 ^b	2.38 $\pm$ 0.07 ^b	2.70 $\pm$ 0.06 ^a	2.64 $\pm$ 0.06 ^b
R	2.46 $\pm$ 0.07 ^a	2.41 $\pm$ 0.07 ^{ab}	2.65 $\pm$ 0.07 ^a	2.86 $\pm$ 0.07 ^a	2.71 $\pm$ 0.07 ^a	2.90 $\pm$ 0.05 ^a

Dissimilar lower case letters indicate significant differences between lines ($P < 0.05$)

APPENDIX P

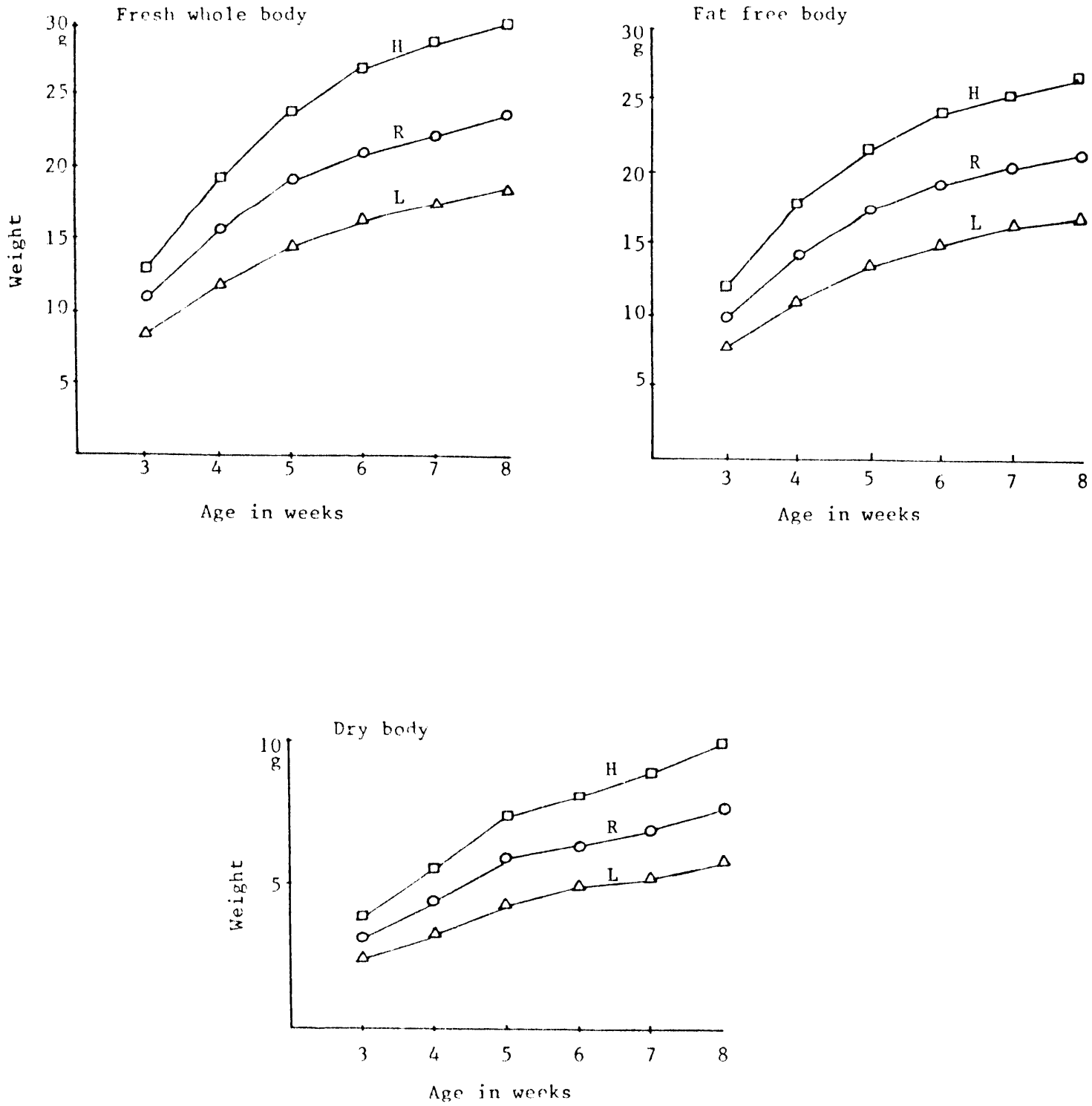


Figure 1 Postweaning growth curves

APPENDIX Q

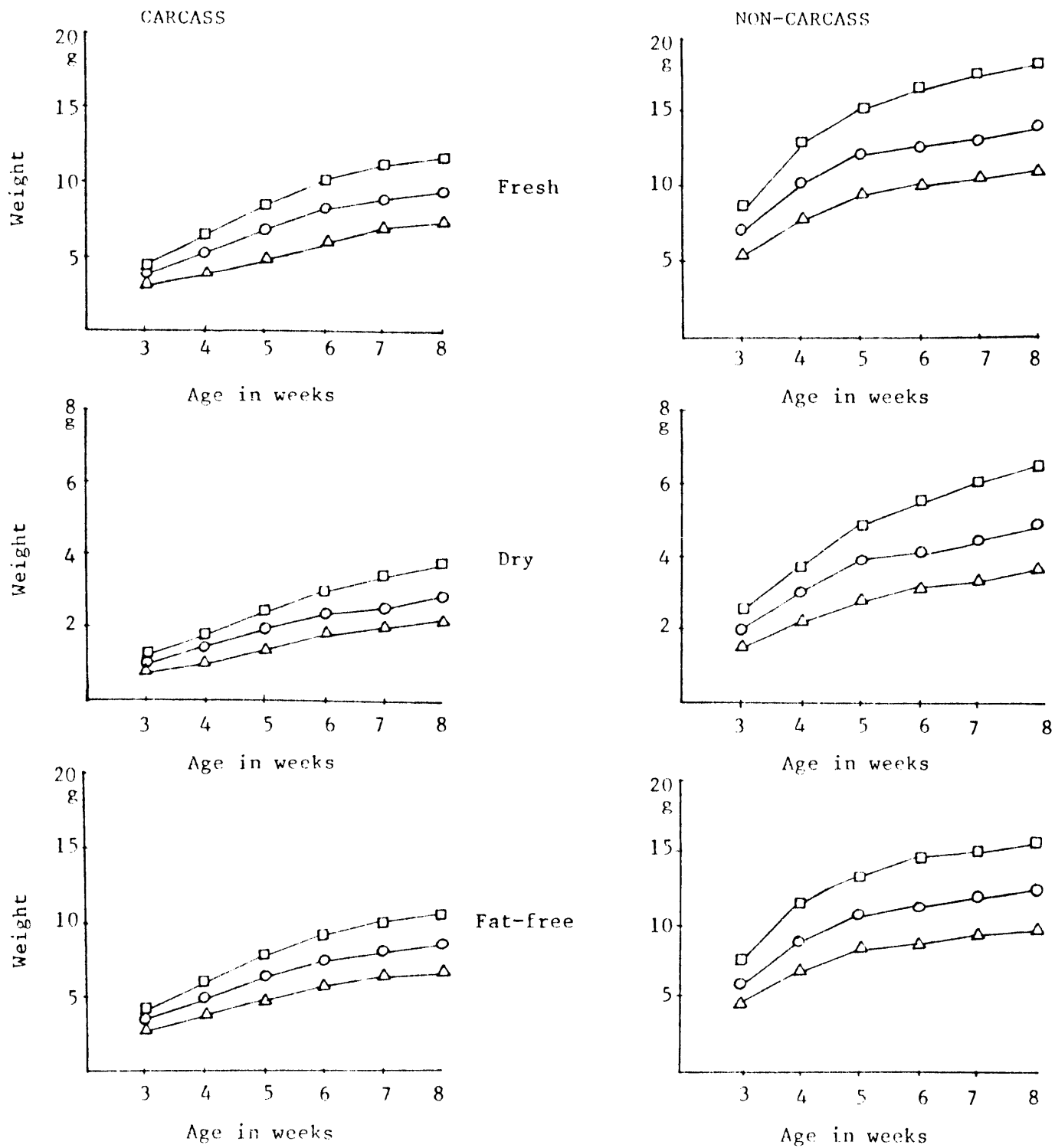


Figure 2 Postweaning growth curves of carcass and non-carcass parts of fresh, dry and fat-free body.

Lines: H $\square$; RO $\circ$; LA $\triangle$

APPENDIX R

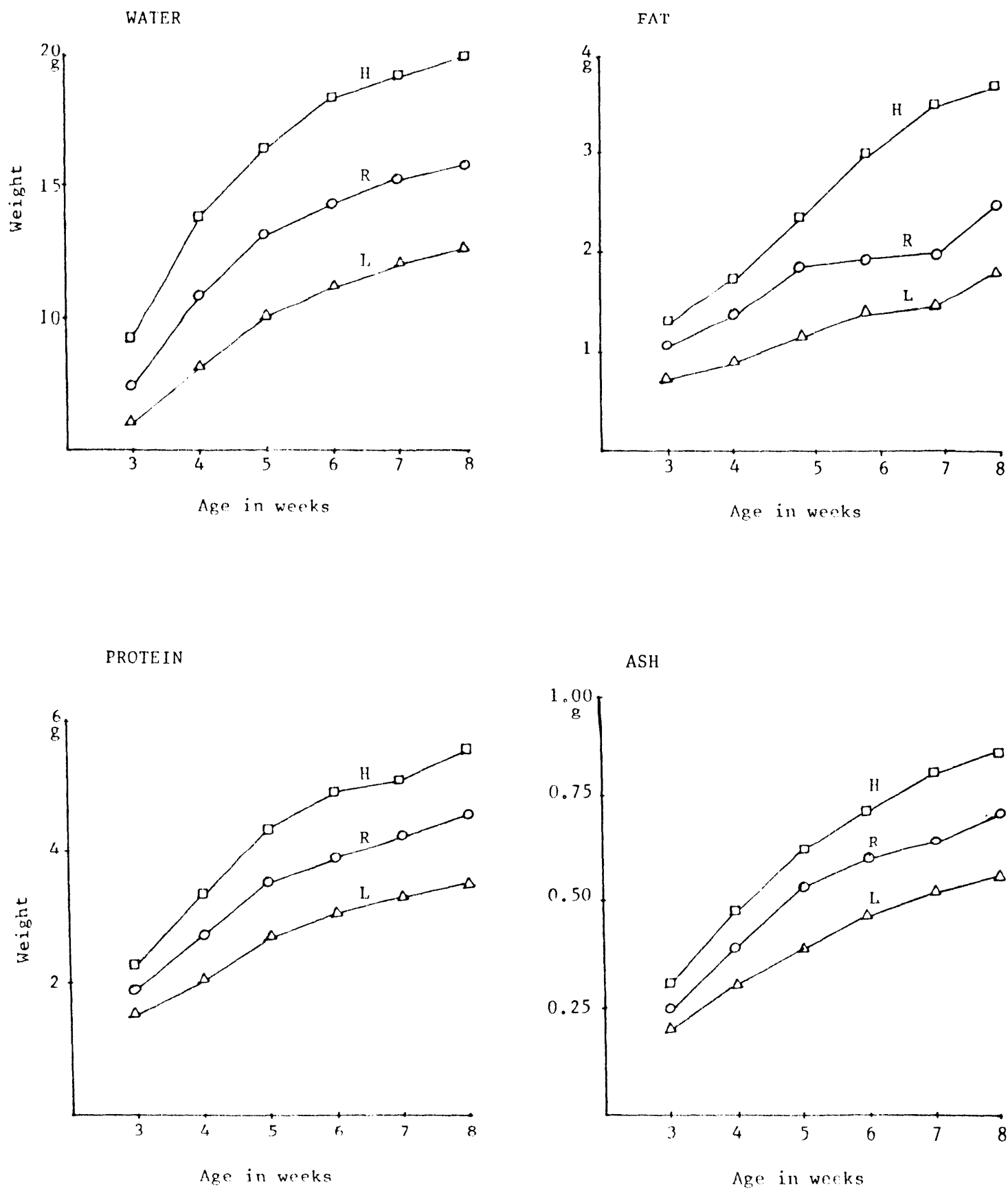


Figure 3. Average weights of chemical constituents of the fresh whole body from 3 to 8 weeks of age.

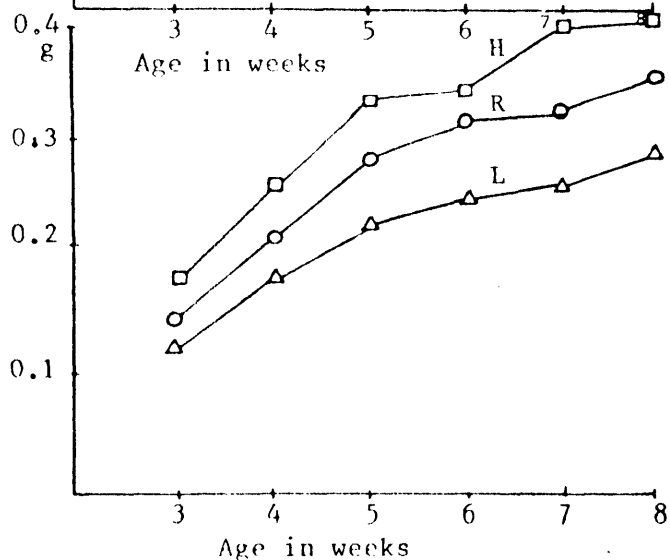
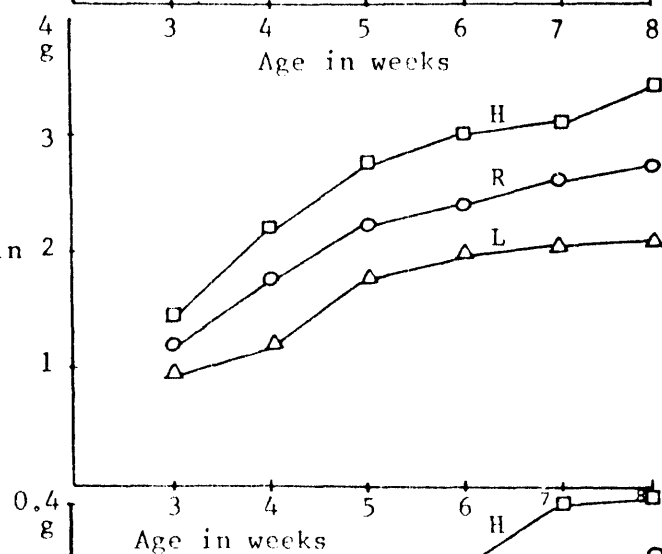
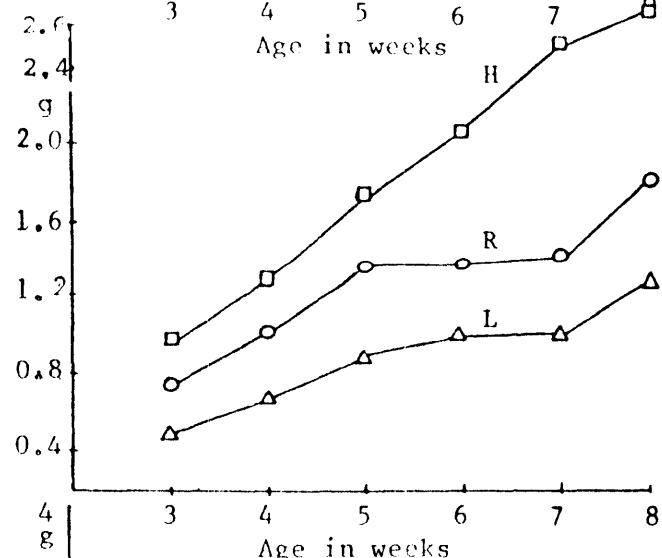
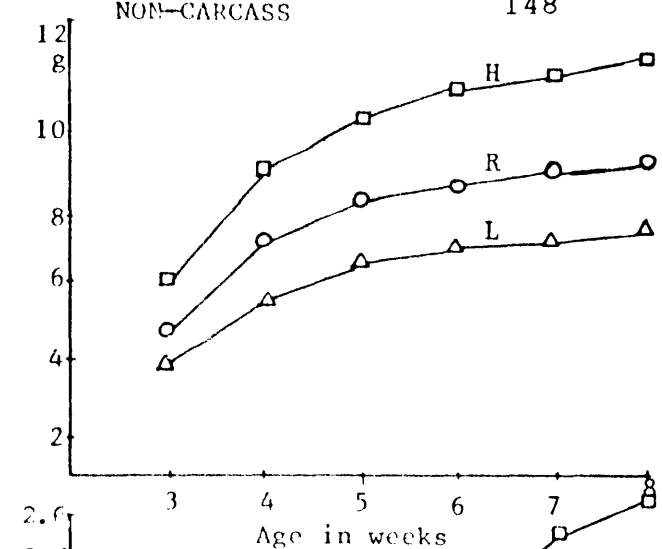
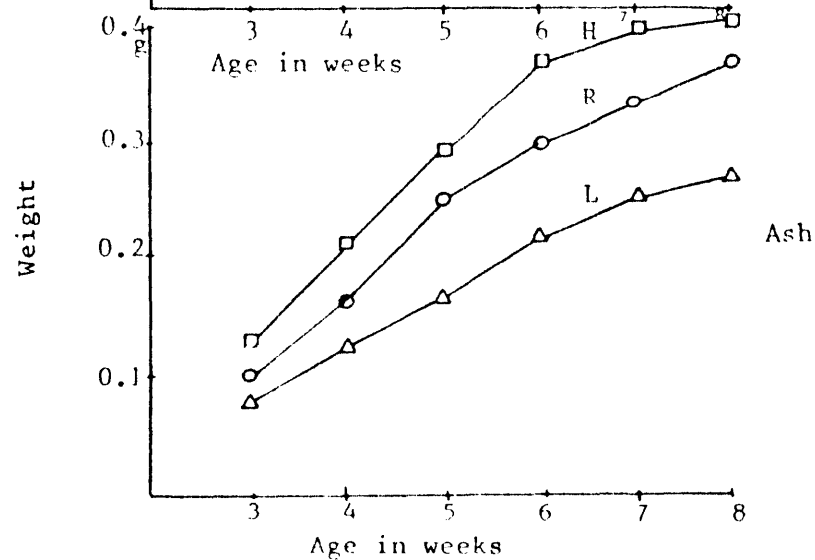
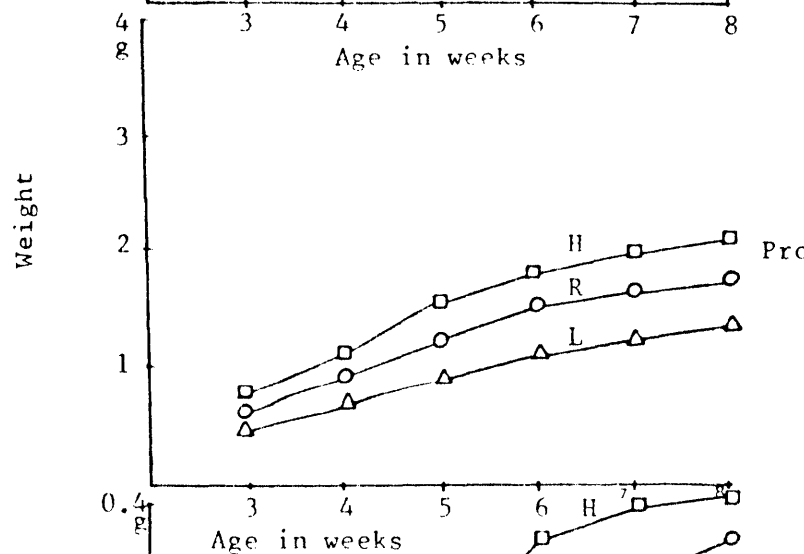
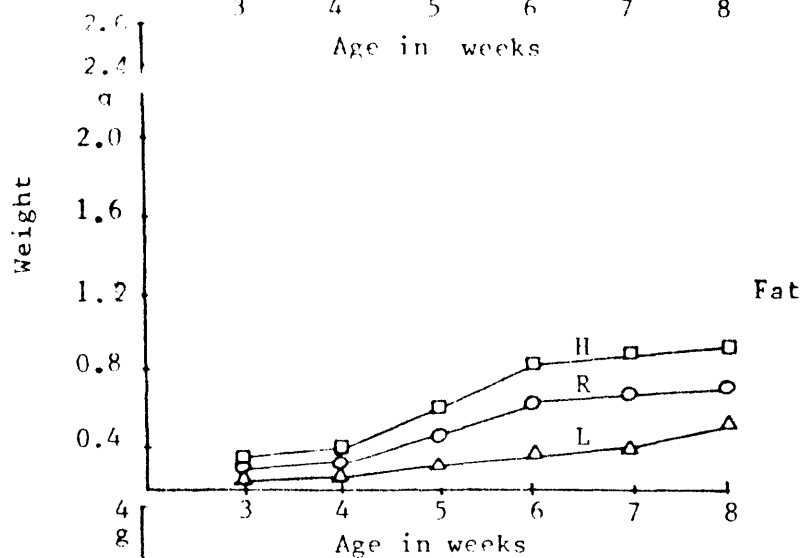
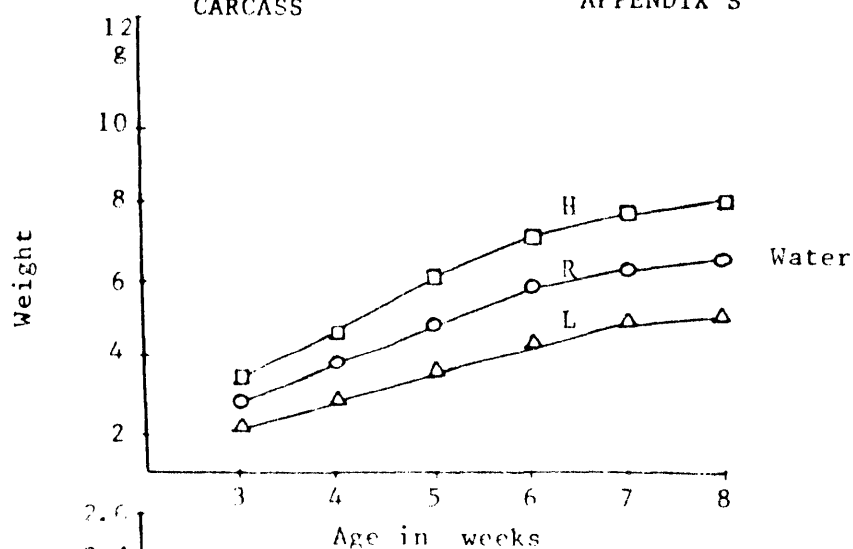


Figure 4. Average weights of chemical constituents of carcass and non-carcass parts of the fresh whole body from 3 to 8 weeks of age.

APPENDIX I

The effect of sex on weight gain, feed intake and feed efficiency

Age Interval in weeks	Sex	Weight Gain			Feed Intake			Feed Efficiency					
		L	H	R	Total	L	H	R	Total	L	H	R	Total
3-4	M	4.43	8.04	6.54	6.34	22.85	33.75	28.62	28.41	0.20	0.24	0.23	0.22
	F	3.18	6.34	4.57	4.69	22.52	32.44	27.56	27.53	0.14	0.20	0.17	0.17
	M-F ⁺	**	**	**	**	N.S.	N.S.	N.S.	*	**	**	**	**
4-5	M	3.41	4.65	3.42	3.83	27.30	40.35	35.51	34.39	0.13	0.12	0.10	0.11
	F	2.63	3.82	2.80	3.09	25.52	36.08	32.07	31.21	0.10	0.11	0.09	0.10
	M-F	**	**	**	**	**	**	**	**	**	N.S.	N.S.	*
5-6	M	1.41	3.43	1.77	2.21	30.91	44.10	36.61	37.24	0.05	0.08	0.07	0.06
	F	1.53	2.42	1.57	1.84	29.08	40.79	36.68	35.55	0.05	0.06	0.04	0.05
	M-F	N.S.	**	N.S.	*	*	**	N.S.	*	N.S.	*	**	*
6-7	M	1.27	2.71	1.72	1.90	30.75	42.83	37.21	36.94	0.04	0.06	0.05	0.05
	F	1.00	1.82	1.35	1.40	29.47	39.03	35.58	34.71	0.03	0.05	0.04	0.04
	M-F	N.S.	**	*	**	N.S.	**	*	*	N.S.	N.S.	N.S.	*
7-8	M	0.94	1.52	1.04	1.16	30.54	43.73	37.99	37.41	0.03	0.04	0.03	0.03
	F	0.98	1.15	1.06	1.08	30.93	41.92	37.62	36.82	0.03	0.03	0.03	0.03
	M-F	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

+ t-test; * P<0.05; ** P<0.01

APPENDIX U

Equations for expected contribution of genetic effects in purebreds and their crosses.

	$A = g_A^O + g_A^M$
Purebreds	$B = g_B^O + g_B^M$
	$C = g_C^O + g_C^M$
	$AB = \frac{1}{2}g_A^O + \frac{1}{2}g_B^O + g_B^M + h_{AB}^O$
	$BA = \frac{1}{2}g_A^O + \frac{1}{2}g_B^O + g_A^M + h_{AB}^O$
F_1	$AC = \frac{1}{2}g_A^O + \frac{1}{2}g_C^O + g_C^M + h_{AC}^O$
	$CA = \frac{1}{2}g_A^O + \frac{1}{2}g_C^O + g_A^M + h_{AC}^O$
	$BC = \frac{1}{2}g_B^O + \frac{1}{2}g_C^O + g_C^M + h_{BC}^O$
	$CB = \frac{1}{2}g_B^O + \frac{1}{2}g_C^O + g_B^M + h_{BC}^O$
F_2	$(AB)^2 \text{ or } (BA)^2 = \frac{1}{2}g_A^O + \frac{1}{2}g_B^O + \frac{1}{2}g_A^M + \frac{1}{2}g_B^M +$ $\frac{1}{2}h_{AB}^O + h_{AB}^M + \frac{1}{2}r_{AB}^O$
F_3	$(AB)^3 \text{ or } (BA)^3 = \frac{1}{2}g_A^O + \frac{1}{2}g_B^O + \frac{1}{2}g_A^M + \frac{1}{2}g_B^M +$ $\frac{1}{2}h_{AB}^O + \frac{1}{2}h_{AB}^M + \frac{1}{2}r_{AB}^O + \frac{1}{2}r_{AB}^M$
	$A(AB) \text{ or } A(BA) = \frac{3}{4}g_A^O + \frac{1}{4}g_B^O + \frac{1}{2}g_A^M + \frac{1}{2}g_B^M +$ $\frac{1}{2}h_{AB}^O + h_{AB}^M + \frac{1}{4}r_{AB}^O$
B_1	$B(AB) \text{ or } B(BA) = \frac{1}{4}g_A^O + \frac{3}{4}g_B^O + \frac{1}{2}g_A^M + \frac{1}{2}g_B^M +$ $\frac{1}{2}h_{AB}^O + h_{AB}^M + \frac{1}{4}r_{AB}^O$
3-way	$C(AB) \text{ or } C(BA) = \frac{1}{4}g_A^O + \frac{1}{4}g_B^O + \frac{1}{2}g_C^O + \frac{1}{2}g_A^M +$ $\frac{1}{2}g_B^M + \frac{1}{2}h_{CA}^O + \frac{1}{2}h_{CB}^O + h_{AB}^M +$ $\frac{1}{4}r_{AB}^O$

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BIBLIOGRAPHY

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