

## APPENDIX A

### COMPOSITION-CORRECTED MILK

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## COMPOSITION CORRECTED LACTATIONS

Table L13: Lactations Corrected for Fat, Protein and Lactose:  
All Breeds: All Lactations.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	272	543 $\pm$ 275	6	1404
Fat (%)	269	4.66 $\pm$ 1.95	2.17	13.62
Protein (%)	317	3.65 $\pm$ 0.99	2.23	7.80
Lactose (%)	317	4.72 $\pm$ 0.41	3.47	6.16
Fat Corrected Milk (kg)	262	541 $\pm$ 216	24	1130
Protein Corrected Milk (kg)	262	572 $\pm$ 239	20	1284
Lactose Corrected Milk (kg)	262	562 $\pm$ 263	9	1376
FPL Corrected Milk (kg)	262	557 $\pm$ 233	17	1245

Table L14: Lactations Corrected for Fat, Protein and Lactose:  
All Breeds: Lactations 1,2 and 3.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	246	531 $\pm$ 276	6	1404
Fat (%)	243	4.75 $\pm$ 2.00	2.17	13.62
Protein (%)	269	3.62 $\pm$ 1.00	2.23	7.80
Lactose (%)	269	4.69 $\pm$ 0.35	3.47	5.80
Fat Corrected Milk (kg)	236	535 $\pm$ 217	24	1130
Protein Corrected Milk (kg)	236	563 $\pm$ 241	20	1284
Lactose Corrected Milk (kg)	236	553 $\pm$ 265	9	1376
FPL Corrected Milk (kg)	236	550 $\pm$ 235	17	1254

Table L15: Lactations Corrected for Fat, Protein and Lactose:  
Saanen Goats: Lactations 1,2 and 3.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	135	708 $\pm$ 202	334	1404
Fat (%)	132	3.43 $\pm$ 0.54	2.17	4.76
Protein (%)	132	2.88 $\pm$ 0.33	2.23	3.60
Lactose (%)	132	4.51 $\pm$ 0.20	3.97	5.00
Fat Corrected Milk (kg)	132	604 $\pm$ 172	215	1130
Protein Corrected Milk (kg)	132	677 $\pm$ 188	297	1284
Lactose Corrected Milk (kg)	132	710 $\pm$ 201	334	1376
FPL Corrected Milk (kg)	132	664 $\pm$ 180	301	1254

Table L16: Lactations Corrected for Fat, Protein and Lactose:  
Indigenous Goats: Lactations 1,2 and 3.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	21	23 $\pm$ 13	6	57
Fat (%)	26	9.33 $\pm$ 1.84	5.13	13.62
Protein (%)	52	5.21 $\pm$ 0.83	3.83	7.80
Lactose (%)	52	4.96 $\pm$ 0.57	3.47	5.80
Fat Corrected Milk (kg)	19	53 $\pm$ 22	24	107
Protein Corrected Milk (kg)	19	43 $\pm$ 20	20	97
Lactose Corrected Milk (kg)	19	26 $\pm$ 15	9	63
FPL Corrected Milk (kg)	19	40 $\pm$ 18	17	87

Table L17: Lactations Corrected for Fat, Protein and Lactose:  
Crossbred Goats: Lactations 1,2 and 3.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	68	384 $\pm$ 126	56	753
Fat (%)	66	5.47 $\pm$ 0.67	4.11	7.16
Protein (%)	66	3.88 $\pm$ 0.30	3.29	4.87
Lactose (%)	66	4.81 $\pm$ 0.18	4.07	5.12
Fat Corrected Milk (kg)	66	536 $\pm$ 162	256	1022
Protein Corrected Milk (kg)	66	507 $\pm$ 151	261	1086
Lactose Corrected Milk (kg)	66	421 $\pm$ 123	154	810
FPL Corrected Milk (kg)	66	483 $\pm$ 141	220	956

Table L18: Lactations Corrected for Fat, Protein and Lactose:  
Three-quarter Saanen Goats: Lactations 1,2 and 3.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	22	390 $\pm$ 161	82	677
Fat (%)	19	5.10 $\pm$ 0.64	4.01	6.22
Protein (%)	19	3.50 $\pm$ 0.41	2.76	4.49
Lactose (%)	19	4.73 $\pm$ 0.17	4.50	5.07
Fat Corrected Milk (kg)	19	539 $\pm$ 163	291	894
Protein Corrected Milk (kg)	19	494 $\pm$ 150	268	774
Lactose Corrected Milk (kg)	19	449 $\pm$ 138	214	707
FPL Corrected Milk (kg)	19	492 $\pm$ 146	255	789

Table L19: Lactations Corrected for Fat, Protein and Lactose:  
Saanen Goats: First Lactations.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	59	579 $\pm$ 130	334	885
Fat (%)	56	3.41 $\pm$ 0.57	2.34	4.58
Protein (%)	56	2.86 $\pm$ 0.34	2.23	3.60
Lactose (%)	56	4.56 $\pm$ 0.18	4.24	5.00
Fat Corrected Milk (kg)	56	487 $\pm$ 116	215	770
Protein Corrected Milk (kg)	56	548 $\pm$ 127	297	850
Lactose Corrected Milk (kg)	56	585 $\pm$ 132	334	883
FPL Corrected Milk (kg)	56	541 $\pm$ 117	301	823

Table L20: Lactations Corrected for Fat, Protein and Lactose:  
Saanen Goats: Second Lactations.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	48	838 $\pm$ 177	487	1404
Fat (%)	48	3.44 $\pm$ 0.50	2.17	4.59
Protein (%)	48	2.89 $\pm$ 0.33	2.35	3.60
Lactose (%)	48	4.49 $\pm$ 0.20	3.97	4.92
Fat Corrected Milk (kg)	48	716 $\pm$ 148	375	1130
Protein Corrected Milk (kg)	48	801 $\pm$ 165	404	1284
Lactose Corrected Milk (kg)	48	836 $\pm$ 182	488	1376
FPL Corrected Milk (kg)	48	785 $\pm$ 156	454	1254

Table L21: Lactations Corrected for Fat, Protein and Lactose:  
Saanen Goats: Third Lactations.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	28	758 $\pm$ 208	487	1295
Fat (%)	28	3.46 $\pm$ 0.55	2.37	4.76
Protein (%)	28	2.90 $\pm$ 0.32	2.36	3.60
Lactose (%)	28	4.43 $\pm$ 0.19	4.10	4.90
Fat Corrected Milk (kg)	28	644 $\pm$ 158	425	1030
Protein Corrected Milk (kg)	28	721 $\pm$ 163	498	1166
Lactose Corrected Milk (kg)	28	745 $\pm$ 203	501	1278
FPL Corrected Milk (kg)	28	704 $\pm$ 169	482	1162

Table L22: Lactations Corrected for Fat, Protein and Lactose:  
Saanen Goats: Fourth Lactations.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	15	764 $\pm$ 242	435	1165
Fat (%)	15	3.41 $\pm$ 0.46	2.69	4.63
Protein (%)	15	2.88 $\pm$ 0.34	2.44	3.57
Lactose (%)	15	4.39 $\pm$ 0.16	4.11	4.73
Fat Corrected Milk (kg)	15	643 $\pm$ 191	382	966
Protein Corrected Milk (kg)	15	717 $\pm$ 179	445	999
Lactose Corrected Milk (kg)	15	743 $\pm$ 228	440	1129
FPL Corrected Milk (kg)	15	701 $\pm$ 197	421	1013

Table L23: Lactations Corrected for Fat, Protein and Lactose:  
Saanen Goats: Fifth Lactations.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	6	503 $\pm$ 111	349	657
Fat (%)	6	3.41 $\pm$ 0.67	2.54	4.39
Protein (%)	6	2.90 $\pm$ 0.50	2.42	3.86
Lactose (%)	6	4.38 $\pm$ 0.27	4.08	4.81
Fat Corrected Milk (kg)	6	427 $\pm$ 115	254	558
Protein Corrected Milk (kg)	6	483 $\pm$ 107	282	602
Lactose Corrected Milk (kg)	6	489 $\pm$ 107	329	596
FPL Corrected Milk (kg)	6	466 $\pm$ 103	290	584

Table L24: Lactations Corrected for Fat, Protein and Lactose:  
Indigenous Goats: First Lactations.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	21	23 $\pm$ 13	6	57
Fat (%)	20	9.09 $\pm$ 1.80	5.13	13.62
Protein (%)	23	5.39 $\pm$ 0.74	3.93	7.40
Lactose (%)	23	4.77 $\pm$ 0.51	3.52	5.67
Fat Corrected Milk (kg)	19	53 $\pm$ 22	24	107
Protein Corrected Milk (kg)	19	43 $\pm$ 20	20	97
Lactose Corrected Milk (kg)	19	26 $\pm$ 15	9	63
FPL Corrected Milk (kg)	19	40 $\pm$ 18	17	87

Table L25: Lactations Corrected for Fat, Protein and Lactose:  
Crossbred Goats: First Lactations.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	32	317 $\pm$ 102	56	575
Fat (%)	30	5.41 $\pm$ 0.68	4.11	6.74
Protein (%)	30	3.91 $\pm$ 0.35	3.29	4.87
Lactose (%)	30	4.81 $\pm$ 0.20	4.07	5.08
Fat Corrected Milk (kg)	30	452 $\pm$ 133	256	923
Protein Corrected Milk (kg)	30	434 $\pm$ 111	261	826
Lactose Corrected Milk (kg)	30	357 $\pm$ 86	154	617
FPL Corrected Milk (kg)	30	410 $\pm$ 106	220	778

Table L26: Lactations Corrected for Fat, Protein and Lactose:  
Crossbred Goats: Second Lactations.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	24	446 $\pm$ 118	271	753
Fat (%)	24	5.53 $\pm$ 0.71	4.29	7.16
Protein (%)	24	3.86 $\pm$ 0.27	3.34	4.33
Lactose (%)	24	4.80 $\pm$ 0.19	4.21	5.12
Fat Corrected Milk (kg)	24	612 $\pm$ 159	339	1022
Protein Corrected Milk (kg)	24	573 $\pm$ 160	373	1086
Lactose Corrected Milk (kg)	24	476 $\pm$ 128	287	810
FPL Corrected Milk (kg)	24	549 $\pm$ 143	339	956

Table L27: Lactations Corrected for Fat, Protein and Lactose:  
Crossbred Goats: Third Lactations.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	12	438 $\pm$ 120	219	600
Fat (%)	12	5.52 $\pm$ 0.58	4.83	6.46
Protein (%)	12	3.85 $\pm$ 0.24	3.61	4.31
Lactose (%)	12	4.82 $\pm$ 0.14	4.52	5.01
Fat Corrected Milk (kg)	12	593 $\pm$ 141	353	850
Protein Corrected Milk (kg)	12	559 $\pm$ 149	291	770
Lactose Corrected Milk (kg)	12	467 $\pm$ 124	244	631
FPL Corrected Milk (kg)	12	535 $\pm$ 134	294	714

Table L28: Lactations Corrected for Fat, Protein and Lactose:  
Crossbred Goats: Fourth Lactations.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	5	504 $\pm$ 227	311	828
Fat (%)	5	5.48 $\pm$ 0.76	4.41	6.37
Protein (%)	5	3.86 $\pm$ 0.02	3.83	3.88
Lactose (%)	5	4.74 $\pm$ 0.12	4.56	4.87
Fat Corrected Milk (kg)	5	658 $\pm$ 208	495	913
Protein Corrected Milk (kg)	5	649 $\pm$ 295	398	1071
Lactose Corrected Milk (kg)	5	528 $\pm$ 229	337	865
FPL Corrected Milk (kg)	5	605 $\pm$ 238	408	935

Table L29: Lactations Corrected for Fat, Protein and Lactose:  
Three-quarter Saanens: First Lactations.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	12	320 $\pm$ 166	82	569
Fat (%)	9	5.13 $\pm$ 0.60	4.01	6.01
Protein (%)	9	3.68 $\pm$ 0.47	2.76	4.49
Lactose (%)	9	4.76 $\pm$ 0.20	4.50	5.07
Fat Corrected Milk (kg)	9	476 $\pm$ 147	291	730
Protein Corrected Milk (kg)	9	461 $\pm$ 168	268	749
Lactose Corrected Milk (kg)	9	402 $\pm$ 149	214	613
FPL Corrected Milk (kg)	9	444 $\pm$ 152	255	689

Table L30: Lactations Corrected for Fat, Protein and Lactose:  
Three-quarter Saanens: Second Lactations.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	5	438 $\pm$ 115	300	584
Fat (%)	5	5.09 $\pm$ 0.63	4.43	6.01
Protein (%)	5	3.33 $\pm$ 0.19	3.04	3.56
Lactose (%)	5	4.74 $\pm$ 0.10	4.60	4.86
Fat Corrected Milk (kg)	5	542 $\pm$ 114	391	648
Protein Corrected Milk (kg)	5	476 $\pm$ 103	333	560
Lactose Corrected Milk (kg)	5	455 $\pm$ 114	314	578
FPL Corrected Milk (kg)	5	491 $\pm$ 108	367	589

Table L31: Lactations Corrected for Fat, Protein and Lactose:  
Three-quarter Saanens: Third Lactations.

Variable	No.	Mean $\pm$ SE	Min.	Max.
Milk Yield (kg)	5	509 $\pm$ 109	378	677
Fat (%)	5	5.04 $\pm$ 0.84	4.14	6.22
Protein (%)	5	3.33 $\pm$ 0.37	2.79	3.81
Lactose (%)	5	4.64 $\pm$ 0.17	4.50	4.91
Fat Corrected Milk (kg)	5	649 $\pm$ 198	407	894
Protein Corrected Milk (kg)	5	570 $\pm$ 154	406	774
Lactose Corrected Milk (kg)	5	527 $\pm$ 123	378	707
FPL Corrected Milk (kg)	5	581 $\pm$ 153	395	789

## **APPENDIX B**

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## **APPENDIX B**

### **TABLES: CORRELATIONS: Lactation Yield and Milk Composition**

Table C1.1: Correlations: Lactation Yield and Milk Composition: All Goat Breeds: All Lactations

Table C1.2: Correlations: Lactation Yield and Milk Composition: All Goat Breeds: Lactations 1,2,3

Table C1.3: Correlations: Lactation Yield and Milk Composition: Saanen Goats: First Lactations

Table C1.4: Correlations: Lactation Yield and Milk Composition: Saanen Goats: Second Lactations

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Table C1.8: Correlations: Lactation Yield and Milk Composition: Saanen Goats: Lactations 1,2,3

Table C1.9: Correlations: Lactation Yield and Milk Composition: Indigenous Goats: First Lactations

Table C1.10: Correlations: Lactation Yield and Milk Composition: Indigenous Goats: Lactations 1,2,3

Table C1.11: Correlations: Lactation Yield and Milk Composition: Crossbred Goats: First Lactations

Table C1.12: Correlations: Lactation Yield and Milk Composition: Crossbred Goats: Second Lactations

Table C1.13: Correlations: Lactation Yield and Milk Composition: Crossbred Goats: Third Lactations

Table C1.14: Correlations: Lactation Yield and Milk Composition: Crossbred Goats: Fourth Lactations

Table C1.15: Correlations: Lactation Yield and Milk Composition: Crossbred Goats: Lactations 1,2,3



Table C1.16: Correlations: Lactation Yield and Milk Composition: Three-quarter Saanens: First Lactations

Table C1.17: Correlations: Lactation Yield and Milk Composition: Three-quarter Saanens: Second Lactations

Table C1.18: Correlations: Lactation Yield and Milk Composition: Three-quarter Saanens: Third Lactations

Table C1.19: Correlations: Lactation Yield and Milk Composition: Three-quarter Saanens: Lactations 1,2,3

### TABLES: CORRELATIONS (C1)

Table C1.1: Correlations: Lactation Yield and Milk Composition: All Goat Breeds: All Lactations.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.72987 0.0001 262	-0.73410 0.0001 262	-0.36080 0.0001 262
Fat(%)		0.93674 0.0001 269	0.14095 0.0208 269
Protein(%)			0.37235 0.0001 317

[In each cell is listed: correlation; significance; number of lactations]

Table C1.2: Correlations: Lactation Yield and Milk Composition: All Goat Breeds: Lactations 1,2,3.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.74533 0.0001 236	-0.74847 0.0001 236	0.34476 0.0001 236
Fat(%)		0.93850 0.0001 243	0.09595 0.1358 243
Protein(%)			0.27829 0.0001 269

[In each cell is listed: correlation; significance; number of lactations]

Table C1.3: Correlations: Lactation Yield and Milk Composition: Saanen Goats: First Lactations.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.30546 0.0221 56	-0.23194 0.0854 56	-0.14747 0.2781 56
Fat(%)		0.75770 0.0001 56	-0.00090 0.9947 56
Protein(%)			0.10926 0.4228 56

[In each cell is listed: correlation; significance; number of lactations]

Table C1.4: Correlations: Lactation Yield and Milk Composition: Saanen Goats: Second Lactations.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.32138 0.0259 48	-0.28098 0.0530 48	0.03172 0.8305 48
Fat(%)		0.59609 0.0001 48	0.16926 0.2501 48
Protein(%)			-0.05866 0.6921 48

[In each cell is listed: correlation; significance; number of lactations]

Table C1.5: Correlations: Lactation Yield and Milk Composition: Saanen Goats: Third Lactations.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.38306 0.0442 28	-0.53944 0.0031 28	-0.12378 0.5303 28
Fat(%)		0.49723 0.0071 28	0.23972 0.2192 28
Protein(%)			-0.01878 0.9244 28

[In each cell is listed: correlation; significance; number of lactations]

Table C1.6: Correlations: Lactation Yield and Milk Composition: Saanen Goats: Fourth Lactations.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.31376 0.2548 15	-0.61422 0.0148 15	-0.29799 0.2807 15
Fat(%)		0.63592 0.0108 15	0.14921 0.5956 15
Protein(%)			0.05445 0.8472 15

[In each cell is listed: correlation; significance; number of lactations]

Table C1.7: Correlations: Lactation Yield and Milk Composition: Saanen Goats: Fifth Lactations.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.93946 0.8595 6	-0.21843 0.6776 6	-0.09024 0.8650 6
Fat(%)		0.72246 0.1049 6	0.54500 0.2634 6
Protein(%)			0.14970 0.7771 6

[In each cell is listed: correlation; significance; number of lactations]

Table C1.8: Correlations: Lactation Yield and Milk Composition: Saanen Goats: Lactations 1,2,3.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.24605 0.0045 132	-0.23363 0.0070 132	-0.15966 0.0675 132
Fat(%)		0.65000 0.0001 132	0.09771 0.2650 132
Protein(%)			0.00505 0.9542 132

[In each cell is listed: correlation; significance; number of lactations]

Table C1.9: Correlations: Lactation Yield and Milk Composition: Indigenous Goats: First Lactations.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.55803 0.0130 19	-0.50744 0.0266 19	0.59241 0.0075 19
Fat(%)		0.66604 0.0013 20	-0.49451 0.0267 20
Protein(%)			-0.64967 0.0008 23

[In each cell is listed: correlation; significance; number of lactations]

Table C1.10: Correlations: Lactation Yield and Milk Composition: Indigenous Goats: Lactations 1,2,3.\*

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.55803 0.0130 19	-0.50744 0.0266 19	0.59241 0.0075 19
Fat(%)		0.72594 0.0001 26	-0.59502 0.0013 26
Protein(%)			-0.69008 0.0001 52

[In each cell is listed: correlation; significance; number of lactations]

[\* Note: Extra analyses were available for protein and lactose from other lactations]

Table C1.11: Correlations: Lactation Yield and Milk Composition: Crossbred Goats: First Lactations.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	0.07928 0.6771 30	-0.12276 0.5181 30	0.12396 0.5140 30
Fat(%)		0.56760 0.0011 30	-0.13649 0.4720 30
Protein(%)			-0.10937 0.5651 30

[In each cell is listed: correlation; significance; number of lactations]

Table C1.12: Correlations: Lactation Yield and Milk Composition: Crossbred Goats: Second Lactations.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.20130 0.3456 24	-0.05994 0.7808 24	0.06735 0.7545 24
Fat(%)		0.33094 0.1142 24	0.22884 0.2821 24
Protein(%)			-0.07540 0.7262 24

[In each cell is listed: correlation; significance; number of lactations]

Table C1.13: Correlations: Lactation Yield and Milk Composition: Crossbred Goats: Third Lactations.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.69024 0.0130 12	-0.37851 0.2250 12	-0.48199 0.1126 12
Fat(%)		0.64449 0.0237 12	0.54177 0.0688 12
Protein(%)			0.30103 0.3417 12

[In each cell is listed: correlation; significance; number of lactations]

Table C1.14: Correlations: Lactation Yield and Milk Composition: Crossbred Goats: Fourth Lactations.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.91825 0.0277 5	0.82163 0.0880 5	-0.74102 0.1519 5
Fat(%)		-0.61813 0.2665 5	0.63331 0.2514 5
Protein(%)			-0.67933 0.2072 5

[In each cell is listed: correlation; significance; number of lactations]

Table C1.15: Correlations: Lactation Yield and Milk Composition: Crossbred Goats: Lactations 1,2,3.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.11761 0.3474 66	-0.16154 0.1950 66	-0.00924 0.9413 66
Fat(%)		0.47806 0.0001 66	0.07983 0.5240 66
Protein(%)			-0.05301 0.6725 66

[In each cell is listed: correlation; significance; number of lactations]

Table C1.16: Correlations: Lactation Yield and Milk Composition: Three-quarter Saanens: First Lactations.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.74007 0.0226 9	-0.37481 0.3203 9	-0.04990 0.8986 9
Fat(%)		0.87438 0.0020 9	0.43057 0.2473 9
Protein(%)			0.63580 0.0657 9

[In each cell is listed: correlation; significance; number of lactations]

Table C1.17: Correlations: Lactation Yield and Milk Composition: Three-quarter Saanens: Second Lactations.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.49392 0.3977 5	-0.57327 0.3123 5	0.48504 0.4076 5
Fat(%)		0.29735 0.6271 5	0.36575 0.5449 5
Protein(%)			0.14911 0.8109 5

[In each cell is listed: correlation; significance; number of lactations]

Table C1.18: Correlations: Lactation Yield and Milk Composition: Three-quarter Saanens: Third Lactations.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	0.40133 0.5031 5	0.35377 0.5591 5	0.52846 0.3599 5
Fat(%)		0.63191 0.2528 5	0.39716 0.5080 5
Protein(%)			0.84935 0.0686 5

[In each cell is listed: correlation; significance; number of lactations]

Table C1.19: Correlations: Lactation Yield and Milk Composition: Three-quarter Saanens: Lactations 1,2,3.

	Fat(%)	Protein(%)	Lactose(%)
Milk Yield (kg)	-0.35429 0.1367 19	-0.35286 0.1384 19	0.00056 0.9982 19
Fat(%)		0.63825 0.0033 19	0.38970 0.0991 19
Protein(%)			0.65251 0.0025 19

[In each cell is listed: correlation; significance; number of lactations]



## **TABLES: CORRELATIONS (C2)**

Table C2.1: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

All Goat Breeds: All Lactations

Table C2.2: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

All Goat Breeds: Lactations 1,2,3

Table C2.3: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Saanen Goats: First Lactations

Table C2.4: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Saanen Goats: Second Lactations

Table C2.5: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Saanen Goats: Third Lactations

Table C2.6: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Saanen Goats: Fourth Lactations

Table C2.7: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Saanen Goats: Fifth Lactations

Table C2.8: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Saanen Goats: Lactations 1,2,3

Table C2.9: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Indigenous Goats: First Lactations

Table C2.10: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Crossbred Goats: First Lactations

Table C2.11: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Crossbred Goats: Second Lactations

Table C2.12: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Crossbred Goats: Third Lactations

Table C2.13: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Crossbred Goats: Fourth Lactations

Table C2.14: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Crossbred Goats: Lactations 1,2,3

Table C2.15: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Three-quarter Saanens: First Lactations

Table C2.16: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Three-quarter Saanens: Second Lactations

Table C2.17: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Three-quarter Saanens: Third Lactations

Table C2.18: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Three-quarter Saanens: Lactations 1,2,3

## TABLES: CORRELATIONS (C2)

Table C2.1: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

All Goat Breeds: All Lactations (n = 262).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.84361 0.0001	-0.47882 0.0001	-0.50651 0.0001	-0.11631 0.0601
Protein Corrected Milk (kg)	0.93472 0.0001	-0.62974 0.0001	-0.57793 0.0001	-0.24059 0.0001
Lactose Corrected Milk (kg)	0.99403 0.0001	-0.72146 0.0001	-0.72581 0.0001	-0.27618 0.0001
FPL Corrected Milk (kg)	0.96071 0.0001	-0.64115 0.0001	-0.63813 0.0001	-0.22418 0.0003

[In each cell is listed: correlation; significance]

Table C2.2: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

All Goat Breeds: Lactations 1,2,3. (n = 236).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.84298 0.0001	-0.50621 0.0001	-0.53373 0.0001	-0.10902 0.0947
Protein Corrected Milk (kg)	0.93763 0.0001	-0.65103 0.0001	-0.60325 0.0001	-0.22795 0.0004
Lactose Corrected Milk (kg)	0.99441 0.0001	-0.73869 0.0001	-0.74180 0.0001	0.26373 0.0001
FPL Corrected Milk (kg)	0.96131 0.0001	-0.66322 0.0001	-0.66067 0.0001	0.21296 0.0010

[In each cell is listed: correlation; significance]

Table C2.3: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Saanen Goats: First Lactations (n = 56).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.73872 0.0001	0.39760 0.0024	0.31847 0.0168	-0.14970 0.2708
Protein Corrected Milk (kg)	0.86031 0.0001	0.08480 0.5343	0.28060 0.0362	-0.09242 0.4981
Lactose Corrected Milk (kg)	0.98382 0.0001	-0.31270 0.0190	-0.21695 0.1083	0.02836 0.8356
FPL Corrected Milk (kg)	0.93164 0.0001	0.02435 0.8586	0.09482 0.4870	0.06624 0.6276

[In each cell is listed: correlation; significance]

Table C2.4: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Saanen Goats: Second Lactations (n = 48).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.76605 0.0001	0.33651 0.0194	0.12967 0.3797	0.16565 0.2605
Protein Corrected Milk (kg)	0.84702 0.0001	0.01407 0.9244	0.25887 0.0756	0.03101 0.8343
Lactose Corrected Milk (kg)	0.97686 0.0001	-0.27742 0.0563	-0.27219 0.0613	0.23989 0.1005
FPL Corrected Milk (kg)	0.93560 0.0001	-0.00785 0.9578	-0.00751 0.9596	0.16938 0.2498

[In each cell is listed: correlation; significance]

Table C2.5: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Saanen Goats: Third Lactations (n = 28).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.83034 0.0001	0.18858 0.3365	-0.27180 0.1618	0.00739 0.9702
Protein Corrected Milk (kg)	0.92418 0.0001	-0.21683 0.2677	-0.18355 0.3498	-0.14724 0.4546
Lactose Corrected Milk (kg)	0.98832 0.0001	-0.35118 0.0669	-0.54257 0.0029	0.02523 0.8986
FPL Corrected Milk (kg)	0.96642 0.0001	-0.15816 0.4215	-0.38946 0.0405	-0.02266 0.9089

[In each cell is listed: correlation; significance]

Table C2.6: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Saanen Goats: Fourth Lactations (n = 15).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.93123 0.0001	0.05014 0.8592	-0.40223 0.1372	-0.26507 0.3397
Protein Corrected Milk (kg)	0.93698 0.0001	-0.13316 0.6361	-0.30700 0.2657	-0.33305 0.2251
Lactose Corrected Milk (kg)	0.99289 0.0001	-0.30894 0.2625	-0.62069 0.0135	-0.18513 0.5089
FPL Corrected Milk (kg)	0.98287 0.0001	-0.15380 0.5842	-0.48806 0.0649	-0.25210 0.3647

[In each cell is listed: correlation; significance]

Table C2.7: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Saanen Goats: Fifth Lactations (n = 6).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.74047 0.0923	0.59058 0.2171	0.23430 0.6550	0.32714 0.5268
Protein Corrected Milk (kg)	0.79684 0.0577	0.35187 0.4940	0.41432 0.4141	0.00593 0.9911
Lactose Corrected Milk (kg)	0.94931 0.0038	0.06285 0.9058	-0.18619 0.7239	0.22663 0.6659
FPL Corrected Milk (kg)	0.89219 0.0168	0.35316 0.4923	0.13030 0.8057	0.22389 0.6698

[In each cell is listed: correlation; significance]

Table C2.8: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Saanen Goats: Lactations 1,2,3. (n = 132).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.85426 0.0001	0.27205 0.0016	0.11392 0.1934	-0.09663 0.2703
Protein Corrected Milk (kg)	0.91515 0.0001	0.00928 0.9159	0.16319 0.0615	-0.15267 0.0805
Lactose Corrected Milk (kg)	0.98735 0.0001	-0.23249 0.0073	-0.23115 0.0077	-0.00677 0.9386
FPL Corrected Milk (kg)	0.96253 0.0001	-0.00745 0.9324	-0.01782 0.8393	-0.07800 0.3740

[In each cell is listed: correlation; significance]

Table C2.9: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Indigenous Goats: First Lactations (n = 19).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.88123 0.0001	-0.14574 0.5516	-0.27240 0.2592	0.44630 0.0554
Protein Corrected Milk (kg)	0.97226 0.0001	-0.43083 0.0655	-0.33800 0.1570	0.49696 0.0304
Lactose Corrected Milk (kg)	0.99219 0.0001	-0.59211 0.0076	-0.54494 0.0158	0.66640 0.0018
FPL Corrected Milk (kg)	0.97168 0.0001	-0.37177 0.1170	-0.38336 0.1052	0.54255 0.0164

[In each cell is listed: correlation; significance]

[Note: This is the same Table as for Lactations 1,2,3 for Indigenous goats]

Table C2.10: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Crossbred Goats: First Lactations (n = 30).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.90482 0.0001	0.48692 0.0064	0.14335 0.4498	0.06828 0.7200
Protein Corrected Milk (kg)	0.93436 0.0001	0.27086 0.1477	0.22987 0.2217	0.13514 0.4765
Lactose Corrected Milk (kg)	0.98899 0.0001	0.06516 0.7323	-0.11229 0.5547	0.26074 0.1640
FPL Corrected Milk (kg)	0.96453 0.0001	0.30892 0.0967	0.09120 0.6317	90.15025 0.4281

[In each cell is listed: correlation; significance]

Table C2.11: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Crossbred Goats: Second Lactations (n = 24).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.89011 0.0001	0.26017 0.2196	0.11343 0.5977	0.15953 0.4565
Protein Corrected Milk (kg)	0.96615 0.0001	-0.10240 0.6340	0.18902 0.3764	0.05276 0.8066
Lactose Corrected Milk (kg)	0.99240 0.0001	-0.17178 0.4222	-0.06500 0.7629	0.18864 0.3774
FPL Corrected Milk (kg)	0.97333 0.0001	0.01068 0.9605	0.07709 0.7203	0.14304 0.5049

[In each cell is listed: correlation; significance]

Table C2.12: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Crossbred Goats: Third Lactations (n = 12).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.92131 0.0001	-0.36529 0.2430	-0.16164 0.6157	-0.34766 0.2682
Protein Corrected Milk (kg)	0.97635 0.0001	-0.56767 0.0542	-0.17611 0.5840	-0.43886 0.1535
Lactose Corrected Milk (kg)	0.99542 0.0001	-0.66157 0.0191	-0.36330 0.2457	0.39797 0.2001
FPL Corrected Milk (kg)	0.97896 0.0001	-0.53655 0.0721	-0.24115 0.4502	-0.39761 0.2006

[In each cell is listed: correlation; significance]

Table C2.13: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Crossbred Goats: Fourth Lactations (n = 5).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.98140 0.0001	-0.84604 0.0708	0.84943 0.0685	-0.82977 0.0821
Protein Corrected Milk (kg)	0.99998 0.0001	-0.91699 0.0283	0.82467 0.0858	-0.74027 0.1526
Lactose Corrected Milk (kg)	0.99908 0.0001	-0.92320 0.0253	0.81586 0.0922	-0.71205 0.1773
FPL Corrected Milk (kg)	0.99893 0.0001	-0.90186 0.0364	0.83356 0.0794	-0.76115 0.1350

[In each cell is listed: correlation; significance]

Table C2.14: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Crossbred Goats: Lactations 1,2,3. (n = 66).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.91767 0.0001	0.27318 0.0265	0.03296 0.7928	0.03370 0.7882
Protein Corrected Milk (kg)	0.96652 0.0001	0.00613 0.9610	0.08586 0.4931	0.00244 0.9845
Lactose Corrected Milk (kg)	0.99374 0.0001	-0.10404 0.4058	-0.15580 0.2116	0.09703 0.4383
FPL Corrected Milk (kg)	0.97678 0.0001	0.07587 0.5449	-0.01524 0.9024	0.04752 0.7048

[In each cell is listed: correlation; significance]



Table C2.15: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Three-quarter Saaanens: First Lactations (n = 9).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.95235 0.0001	-0.50472 0.1650	-0.10191 0.7942	0.11126 0.7757
Protein Corrected Milk (kg)	0.92293 0.0004	-0.43422 0.2429	-0.00104 0.9979	0.17382 0.6547
Lactose Corrected Milk (kg)	0.99328 0.0001	-0.67263 0.0471	-0.28092 0.4640	0.05250 0.8933
FPL Corrected Milk (kg)	0.96879 0.0001	-0.55515 0.1208	-0.14418 0.7113	0.10711 0.7039

[In each cell is listed: correlation; significance]

Table C2.16: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Three-quarter Saaanens: Second Lactations (n = 5).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.87186 0.0540	-0.05164 0.9343	-0.33731 0.5788	0.80496 0.1003
Protein Corrected Milk (kg)	0.93385 0.0202	-0.42535 0.4752	-0.25403 0.6801	0.64148 0.2434
Lactose Corrected Milk (kg)	0.98851 0.0015	-0.42981 0.4701	-0.46494 0.4301	0.58010 0.3052
FPL Corrected Milk (kg)	0.95469 0.0115	-0.29892 0.6251	-0.37785 0.5306	0.69084 0.1965

[In each cell is listed: correlation; significance]

Table C2.17: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Three-quarter Saaanens: Third Lactations (n = 5).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.88995 0.0431	0.77359 0.1248	0.56489 0.3211	0.55483 0.3317
Protein Corrected Milk (kg)	0.92805 0.0229	0.55652 0.3299	0.67641 0.2099	0.75708 0.1384
Lactose Corrected Milk (kg)	0.99156 0.0009	0.42213 0.4789	0.45379 0.4427	0.63367 0.2510
FPL Corrected Milk (kg)	0.95563 0.0111	0.62878 0.2558	0.57548 0.3100	0.64855 0.2365

[In each cell is listed: correlation; significance]

Table C2.18: Correlations: Composition Corrected Milk with Lactation Yield and Milk Composition:

Three-quarter Saaanens: Lactations 1,2,3. (n = 19).

	Milk Yield(kg)	Fat(%)	Protein(%)	Lactose(%)
Fat Corrected Milk (kg)	0.90888 0.0001	0.05269 0.8034	-0.09577 0.6965	0.13877 0.5710
Protein Corrected Milk (kg)	0.91627 0.0001	-0.11594 0.6365	0.02995 0.9031	0.23374 0.3355
Lactose Corrected Milk (kg)	0.99226 0.0001	-0.29476 0.2205	-0.25723 0.2877	0.10121 0.6802
FPL Corrected Milk (kg)	0.96085 0.0001	-0.11894 0.6277	-0.12418 0.6125	0.15318 0.5313

[In each cell is listed: correlation; significance]

### **TABLES: CORRELATIONS (C3)**

Table C3.1: Correlations: Composition Corrected Milk Yields: All Goats: All Lactations

Table C3.2: Correlations: Composition Corrected Milk Yields: All Goats: Lactations 1,2,3

Table C3.3: Correlations: Composition Corrected Milk Yields: Saanen Goats: First Lactations

Table C3.4: Correlations: Composition Corrected Milk Yields: Saanen Goats: Second Lactations

Table C3.5: Correlations: Composition Corrected Milk Yields: Saanen Goats: Third Lactations

Table C3.6: Correlations: Composition Corrected Milk Yields: Saanen Goats: Fourth Lactations

Table C3.7: Correlations: Composition Corrected Milk Yields: Saanen Goats: Fifth Lactations

Table C3.8: Correlations: Composition Corrected Milk Yields: Saanen Goats: Lactations 1,2,3

Table C3.9: Correlations: Composition Corrected Milk Yields: Indigenous Goats: First Lactations

Table C3.10: Correlations: Composition Corrected Milk Yields: Crossbred Goats: First Lactations

Table C3.11: Correlations: Composition Corrected Milk Yields: Crossbred Goats: Second Lactations

Table C3.12: Correlations: Composition Corrected Milk Yields: Crossbred Goats: Third Lactations

Table C3.13: Correlations: Composition Corrected Milk Yields: Crossbred Goats: Fourth Lactations

Table C3.14: Correlations: Composition Corrected Milk Yields: Crossbred Goats: Lactations 1,2,3

Table C3.15: Correlations: Composition Corrected Milk Yields: Three-quarter Saanens: First Lactations

Table C3.16: Correlations: Composition Corrected Milk Yields: Three-quarter Saanens: Second Lactations

Table C3.17: Correlations: Composition Corrected Milk Yields: Three-quarter Saanens: Third Lactations

Table C3.18: Correlations: Composition Corrected Milk Yields: Three-quarter Saanens: Lactations 1,2,3

### TABLES: CORRELATIONS (C3)

Table C3.1: Correlations: Composition Corrected Milk Yields: All Goats: All Lactations (n = 262).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.93807 0.0001	0.86184 0.0001	0.95362 0.0001
Protein Corrected Milk (kg)		0.94259 0.0001	0.98620 0.0001
Lactose Corrected Milk (kg)			0.97125 0.0001

[In each cell is listed: correlation; significance]

Table C3.2: Correlations: Composition Corrected Milk Yields: All Goats: Lactations 1,2,3. (n = 236).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.93865 0.0001	0.86066 0.0001	0.95306 0.0001
Protein Corrected Milk (kg)		0.94494 0.0001	0.98730 0.0001
Lactose Corrected Milk (kg)			0.97135 0.0001

[In each cell is listed: correlation; significance]

Table C3.3: Correlations: Composition Corrected Milk Yields: Saanen Goats: First Lactations (n = 56).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.89861 0.0001	0.71772 0.0.0001	0.91608 0.0001
Protein Corrected Milk (kg)		0.85310 0.0001	0.96934 0.0001
Lactose Corrected Milk (kg)			0.92931 0.0001

[In each cell is listed: correlation; significance]

Table C3.4: Correlations: Composition Corrected Milk Yields: Saanen Goats: Second Lactations (n = 48).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.84397 0.0001	0.77953 0.0.0001	0.92005 0.0001
Protein Corrected Milk (kg)		0.83640 0.0001	0.94214 0.0001
Lactose Corrected Milk (kg)			0.94688 0.0001

[In each cell is listed: correlation; significance]

Table C3.5: Correlations: Composition Corrected Milk Yields: Saanen Goats: Third Lactations (n = 28).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.85515 0.0001	0.83787 0.0.0001	0.93357 0.0001
Protein Corrected Milk (kg)		0.91032 0.0001	0.95687 0.0001
Lactose Corrected Milk (kg)			0.97087 0.0001

[In each cell is listed: correlation; significance]

Table C3.6: Correlations: Composition Corrected Milk Yields: Saanen Goats: Fourth Lactations (n = 15).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.93526 0.0001	0.92470 0.0001	0.97494 0.0001
Protein Corrected Milk (kg)		0.92674 0.0001	0.96924 0.0001
Lactose Corrected Milk (kg)			0.98138 0.0001

[In each cell is listed: correlation; significance]

Table C3.7: Correlations: Composition Corrected Milk Yields: Saanen Goats: Fifth Lactations (n = 6).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.83035 0.0407	0.81683 0.0473	0.94944 0.0038
Protein Corrected Milk (kg)		0.76870 0.0741	0.91026 0.0117
Lactose Corrected Milk (kg)			0.93569 0.0061

[In each cell is listed: correlation; significance]

Table C3.8: Correlations: Composition Corrected Milk Yields: Saanen Goats: Lactations 1,2,3. (n = 132).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.91380 0.0001	0.85232 0.0001	0.95111 0.0001
Protein Corrected Milk (kg)		0.90599 0.0001	0.97058 0.0001
Lactose Corrected Milk (kg)			0.96464 0.0001

[In each cell is listed: correlation; significance]

Table C3.9: Correlations: Composition Corrected Milk Yields: Indigenous Goats: First Lactations (n = 19).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.93710 0.0001	0.84184 0.0001	0.96600 0.0001
Protein Corrected Milk (kg)		0.94476 0.0001	0.98924 0.0001
Lactose Corrected Milk (kg)			0.94891 0.0001

[In each cell is listed: correlation; significance]

[Note: This Table is the same for Lactations 1,2 and 3]

Table C3.10: Correlations: Composition Corrected Milk Yields: Crossbred Goats: First Lactations (n = 30).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.93648 0.0001	0.89126 0.0001	0.97627 0.0001
Protein Corrected Milk (kg)		0.93424 0.0001	0.97940 0.0001
Lactose Corrected Milk (kg)			0.96220 0.0001

[In each cell is listed: correlation; significance]

Table C3.11: Correlations: Composition Corrected Milk Yields: Crossbred Goats: Second Lactations (n = 24).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.90910 0.0001	0.89441 0.0001	0.96493 0.0001
Protein Corrected Milk (kg)		0.95799 0.0001	0.97869 0.0001
Lactose Corrected Milk (kg)			0.97527 0.0001

[In each cell is listed: correlation; significance]

Table C3.12: Correlations: Composition Corrected Milk Yields: Crossbred Goats: Third Lactations (n = 12).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.95454 0.0001	0.93100 0.0001	0.97827 0.0001
Protein Corrected Milk (kg)		0.97599 0.0001	0.99099 0.0001
Lactose Corrected Milk (kg)			0.98408 0.0001

[In each cell is listed: correlation; significance]

Table C3.13: Correlations: Composition Corrected Milk Yields: Crossbred Goats: Fourth Lactations (n = 5).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.98149 0.0030	0.97313 0.0053	0.98906 0.0014
Protein Corrected Milk (kg)		0.99910 0.0001	0.99898 0.0001
Lactose Corrected Milk (kg)			0.99644 0.0003

[In each cell is listed: correlation; significance]

Table C3.14: Correlations: Composition Corrected Milk Yields: Crossbred Goats: Lactations 1,2,3. (n = 66).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.93849 0.0001	0.91758 0.0001	0.97605 0.0001
Protein Corrected Milk (kg)		0.96371 0.0001	0.98445 0.0001
Lactose Corrected Milk (kg)			0.97817 0.0001

[In each cell is listed: correlation; significance]

Table C3.15: Correlations: Composition Corrected Milk Yields: Three-quarter Saanens: First Lactations (n= 9).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.99158 0.0001	0.97420 0.0001	0.99666 0.0001
Protein Corrected Milk (kg)		0.95447 0.0001	0.98856 0.0001
Lactose Corrected Milk (kg)			0.98767 0.0001

[In each cell is listed: correlation; significance]



Table C3.16: Correlations: Composition Corrected Milk Yields:  
Three-quarter Saanens: Second Lactations (n = 5).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.90826 0.0329	0.92115 0.0263	0.96791 0.0069
Protein Corrected Milk (kg)		0.97334 0.0052	0.97765 0.0040
Lactose Corrected Milk (kg)			0.98707 0.0018

[In each cell is listed: correlation; significance]

Table C3.17: Correlations: Composition Corrected Milk Yields:  
Three-quarter Saanens: Third Lactations (n = 5).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.92014 0.0268	0.89367 0.0409	0.97323 0.0052
Protein Corrected Milk (kg)		0.96178 0.0089	0.97917 0.0036
Lactose Corrected Milk (kg)			0.96895 0.0065

[In each cell is listed: correlation; significance]

Table C3.18: Correlations: Composition Corrected Milk Yields:  
Three-quarter Saanens: Lactations 1,2,3. (n = 19).

	PCM (kg)	LCM (kg)	FPLCM (kg)
Fat Corrected Milk (kg)	0.93580 0.0001	0.92956 0.0001	0.97818 0.0001
Protein Corrected Milk (kg)		0.95152 0.0001	0.97837 0.0001
Lactose Corrected Milk (kg)			0.98105 0.0001

[In each cell is listed: correlation; significance]

## **APPENDIX C**

### **POST-MORTEM RECORDS**

## APPENDIX C

Table P3: Goat post-mortem Records

<u>Date</u>	<u>pm No.</u>	<u>Number</u>	<u>Sex</u>	<u>Breed</u>	<u>Age</u>	<u>REASON</u>
20/9/88	2450	n/n bl	m	i	?2wk	no milk
3/10/88	2475	L418	f	Sa	1y	uterine prolapse
11/10/88	2494	13	f	c	26d	pneumonia
20/10/88	2515	27	m	c	19d	pneumonia
24/10/88	2521	n/n	m	?Sa	?mth	pneumonia
24/10/88	-20	f	Sa	33d		pneumonia
27/10/88	2528	17	m	Sa	40d	<i>E.coli</i>
29/10/88	2537	n/n	?	?Sa	?	pneumonia
31/10/88	2542	38	f	Sa	27d	pneumonia
6/11/88	2552	22	f	Sa	45d	pneumonia
30/12/88	2655	n/n	m	?Sa	?7mth	CCN
-----						
14/4/89	2820	88/622	f	i	7mth	hepatic atrophy
5/9/89	3027	89/2	m	Sa	3d	emaciation
7/9/89	3032	89/13	m	3q	2d	pneumonia
7/9/89	3033	J10	f	c	1d	pneumonia
12/9/89	3044	89/26	m	c	2d	inanition
16/9/89	3045	J43	f	c	3d	pneumonia
19/9/89	3053	J42	f	Sa	6d	pneumonia
17/10/89	3098	89/15	m	Sa	41d	diarrhoea
18/10/89	3098	89/4	m	Sa	46d	bacterial enteritis
28/10/89	3115	J51	f	c	23d	VitE/Se deficiency
29/10/89	3114	89/5	m	Sa	57d	malnutrition
11/11/89	3136	J15	f	3q	65d	pneumonia
12/11/89	3141	89/41	m	c	61d	diarrhoea
13/11/89	3260	J47	f	Sa	54d	coccidiosis
21/11/89	3161	n/n	m	?	?3mth	cachexia
29/11/89	3181	J19	f	c	81d	coccidiosis
2/12/89	3193	J52	f	c	52d	coccidiosis
6/12/89	3201	89/53	m	c	70d	coccidiosis
12/12/89	3210	n/n	f	?Sa	kid	coccidiosis
14/12/89	3213	n/n	f	?Sa	?	pneumonia + coccidiosis
25/12/89	3229	89/28	m	c	106d	coccidiosis
26/12/89	3228	89/54	m	3q	90d	coccidiosis
28/12/89	3232	89/48	m	Sa	105d	coccidiosis
29/12/89	3233	89/56	m	c	60d	pneumonia + coccidiosis
29/12/89	3234	n/n	f	?Sa	?2mth	pneumonia + coccidiosis
30/12/89	3235	89/18	m	3q	113d	poor condition
31/12/89	3236	89/51	m	Sa	103d	coccidiosis + pneumonia
31/12/89	3238	J45	f	Sa	108d	cachexia + pneumonia
31/12/89	3239	89/55	m	Sa	62d	cachexia + coccidiosis
-----						
4/1/90	3247	J54	f	c	75d	pneumonia + coccidiosis
13/1/90	3260	J47	f	Sa	115d	pneumonia + coccidiosis
16/1/90	3264	89/36	m	Sa	127d	pneumonia + coccidiosis
21/1/90	3274	J50	f	c	115d	pneumonia
1/6/90	2437	n/n	f	Sa	?	tracheitis + septicaemia
31/8/90	3547	H14	f	Sa	0d	born dead
10/10/90	3663	J5	f	c	37d	myocarditis + heart failure
12/10/90	3667	H68	f	c	19d	pneumonia
12/10/90	3670	89/321	f	i	1y	mastitis + vaginitis
15/10/90	-	90/44	m	Sa	36d	ataxia (front girdle)
2/11/90	3695	L473	f	Sa	3y	ketosis
4/11/90	3696	L450	f	Sa	3y	pneumonia + mastitis
25/11/90	3728	87/503	f	i	3y	hepatic cirrhosis
26/11/90	3729	90/38	m	c	80d	?
5/12/90	3757	90/57	f	3q	76d	chronic arthritis
17/12/90	3786	H79	f	i	78d	pneumonia
18/12/90	3788	J30	f	Sa	15mth	pneumonia
23/12/90	3793	90/67	m	3q	90d	pneumonia
24/12/90	3792	H34	f	Sa	106d	(autolysed)

Table P3: Goat post-mortem Records (continued)

<u>Date</u>	<u>pm No.</u>	<u>Number</u>	<u>Sex</u>	<u>Breed</u>	<u>Age</u>	<u>REASON</u>
7/1/91	3811	90/55	m	Sa	110d	coccidiosis
8/1/91	3816	90/96	m	c	93d	coccidiosis
10/1/91	3820	90/63	m	3q	110d	coccidiosis
19/1/91	3838	L410	f	Sa	4y	peritonitis (rupture of intestine)
24/1/91	3851	90/53	m	i	130d	cachexia
11/2/91	3882	90/81	m	i	133d	coccidiosis + pneumonia
21/2/91	-	H53	f	3q	157d	coccidiosis
22/2/91	3904	H31	f	Sa	168d	coccidiosis
28/8/91	4175	K51	f	c	3y	ketosis
19/9/91	4215	91/37	m	Sa	2d	enteritis
26/9/91	4227	K449	f	Sa	4y	acute mastitis ("blue udder")
26/9/91	4226	G40	f	Sa	5d	pneumonia
26/9/91	4225	91/68	m	3q	3d	inaition
30/9/91	4232	91/76	m	Sa	5d	inaition
6/10/91	4247	J39	f	Sa	2y	acute mastitis
11/10/91	4258	91/84	m	3q	7d	inaition
14/10/91	4261	G47	f	3q	23d	?colibacillosis
14/10/91	4260	G74	f	Sa	2d	inaition
31/10/91	4282	91/57	m	Sa	40d	poor condition
17/11/91	- 91/33	m	3q	2d		coccidiosis
19/11/91	4301	G22	f	3q	67d	coccidiosis
20/11/91	4305	G64	f	Sa	52d	coccidiosis
22/11/91	4312	J27	f	Sa	2y	acute mastitis
25/11/91	4316	91/82	m	3q	53d	pneumonia + coccidiosis
8/12/91	4328	91/89	m	3q	49d	coccidiosis
8/12/91	4329	91/52	m	Sa	78d	coccidiosis + pneumonia
12/12/91	4339	91/43	m	Sa	84d	coccidiosis
12/12/91	4340	91/34	m	3q	89d	coccidiosis
13/12/91	4345	G73	f	Sa	43d	coccidiosis + pneumonia
19/12/91	4354	G62	f	Sa	83d	coccidiosis
19/12/91	4353	91/54	m	Sa	89d	coccidiosis
20/12/91	4357	G9	f	i	115d	coccidiosis
21/12/91	4358	91/80	m	3q	84d	coccidiosis
21/12/91	4356	91/62	m	c	90d	coccidiosis
24/12/91	4361	91/65	m	Sa	92d	coccidiosis
24/12/91	4360	G38	f	3e	94d	coccidiosis
26/12/91	4364	91/7	m	i	123d	conc. overload = enteritis
26/12/91	4364	91/5	f	i	124d	conc. overload = enteritis
-----						
7/1/92	4375	G70	f	c	94d	coccidiosis + pneumonia
13/1/92	4395	91/55	m	3e	114d	coccidiosis
13/1/92	4394	91/45	m	Sa	115d	pneumonia
13/1/92	4391	91/69	m	Sa	112d	pneumonia
17/1/92	4403	n/n	m	?Sa	?4mth	coccidiosis
8/1/92	4410	G32	f	Sa	121d	coccidiosis + pneumonia
18/1/92	4408	91/79	m	Sa	111d	pneumonia
18/1/92	4407	G61	f	Sa	113d	pneumonia
18/1/92	4406	G69	f	3q	106d	coccidiosis + pneumonia
23/1/92	4420	G67	f	c	113d	coccidiosis
30/1/92	-	G55	f	3q	129d	pneumonia
31/1/92	4432	91/88	m	3q	105d	coccidiosis + pneumonia
3/2/92	4435	G28	f	Sa	138d	coccidiosis + monezia
10/2/92	4447	H41	f	Sa	18mth	mastitis + septicaemia
21/2/92	4466	G42	f	3q	162d	pneumonia
30/2/92	4481	J81	m	Sa	billy:3y	heart failure?
28/4/92	4538	91/59	m	Sa	8mth	pneumonia + enteritis
25/5/92	4566	Kenny	m	Sa	billy:3y	peritonitis
3/7/92	4599	H52	f	i	2y	pneumonia
7/7/92	4603	n/n	f	3q	3d	? not known
10/7/92	4604	H1	f	c	2y	ketosis
11/7/92	-	J18	f	c	3y	mastitis (Staph)
15/7/92	4610	H80kid	f	c	?4d	inadequate colostrum
17/7/92	4616	H86	f	3q	2y	peritonitis; ketosis
17/7/92	4615	H24	f	Sa	2y	ketosis

Table P3: Goat post-mortem Records (continued)

<u>Date</u>	<u>pm No.</u>	<u>Number</u>	<u>Sex</u>	<u>Breed</u>	<u>Age</u>	<u>REASON</u>
18/7/92	4623	F11	f	7e	3d	born weak
18/7/92	4622	F13	f	c	2d	born weak
18/7/92	4624	n/n	f	?c	?1d	born weak
18/7/92	4625	n/n	m	?c	?1d	born weak
18/7/92	4626	n/n	m	?c	?1d	born weak
20/7/92	4632	n/n	m	?	?3wk	septicaemia
15/8/92	4656	F25	f	3q	17d	hypothermia
15/8/92	4666	G45	f	3q	11mth	pneumonia
17/8/92	4667	n/n	m	?Sa	adult	<i>Pasteurella</i> pneumonia
31/8/92	4691	F44	f	3q	23d	pneumonia
1/9/92	4690	87/414	f	i	5y	unknown
29/9/92	4744	n/n	m	?Sa	?3wk	unknown
3/10/92	4757	F21	f	c	64d	renal dysplasia
6/10/92	4766	92/21	m	Sa	81d	pneumonia
7/10/92	4767	92/57	m	Sa	38d	pneumonia( <i>Corynebacterium</i> )
8/10/92	4770	92/60	m	3q	2d	emaciated
9/10/92	4774	92/64	m	Sa	1d	pneumonia
10/10/92	4771	92/61	m	Sa	4d	pericarditis + pleuritis
10/10/92	4772	92/90	m	?Sa	?1d	enteritis; emaciated
10/10/92	4773	92/59	m	3q	4d	pneumonia
27/10/92	4809	F15	f	Sa	102d	coccidiosis
27/10/92	4803	F35	f	i	87d	coccidiosis
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29/3/93	-	J44	f	Sa	4y	spinal abscess
2/4/93	-	G13	f	i	2y	pregnancy toxemia
5/4/93	5017	D28	f	c	7d	(autolysed)
17/5/98	5068	D68	f	Sa	15d	coccidiosis
5/6/93	5083	H92	f	c	3y	<b>heartwater</b>
5/6/93	-	L466?	f	Sa	6y	<i>Pasteurella</i>
27/6/93	5109	D16	f	c	3mth	asphyxiation (stuck in feed bin)
27/6/93	5108	D33	f	c	3mth	asphyxiation (stuck in feed bin)
10/7/93	5131	93/37	m	Sa	91d	coccidiosis
28/7/93	5148	n/n	f	Sa	2d	<i>E.coli</i> septicaemia
28/7/93	-	n/n	f	Sa	2d	<i>E.coli</i> septicaemia
9/8/93	5163	D85	f	3q	10d	pneumonia
9/8/93	5161	D67	f	3q	100d	enteritis + pneumonia
1/10/93	5253	93/35	m	3q	7mth	pneumonia
-----						
20/1/94	5405	L481	f	Sa	7y	carcinoma (squamous cell)
24/3/94	-	G23	f	Sa	3y	plastic in rumen
1/8/94	5601	J13	f	c	5y	dystocia; peritonitis
10/8/94	5610	G3kid	f	c	0d	born dead
11/8/94	5609	F17kid	f	Sa	0d	born dead
12/8/94	5612	F172kid	f	Sa	0d	born dead
15/8/94	5617	P1	f	?	1d	septicaemia
15/8/94	5623	C25	f	Sa	11d	enteropathy
15/8/94	5615	C26	f	Sa	10d	pneumonia
16/8/94	5616	J40	f	Sa	5y	metritis + mastitis
19/8/94	5627	C46	f	Sa	5d	pneumonia
19/8/94	5626	94/29	m	Sa	15d	pneumonia
23/8/94	5634	C28	f	3q	18d	<i>E.coli</i>
24/8/94	5635	H15	f	c	4y	nephrosis; renal calculi
30/8/94	5652	n/n	f	?Sa	?	pneumonia
30/8/94	5653	n/n	f	?Sa	?	septicaemia
30/8/94	5649	n/n	f	?Sa	?2wk	septicaemia
9/9/94	5681	94/48	m	Sa	25d	pyogenic bacterial embolism
21/9/94	5684	C54	f	Sa	33d	pneumonia
27/9/94	5686	C38	f	Sa	45d	coccidiosis
25/10/94	-	C39	f	Sa	73d	(autolysed)
22/11/94	5766	C73	f	c	87d	coccidiosis
22/4/94	5767	H3	f	c	3y	<i>Corynebacterium</i> abscesses; pneumonia
2/12/94	5795	C92	f	Sa	70d	coccidiosis

## APPENDIX D

### TABLES OF HEARTWATER EXPERIMENT

*[Note: Tables H30 to H43 are in the text]*

Table H1: Goats with heartwater: Pre-febrile temperatures: morning and afternoon

Table H2: Temperature reactions: all goats not treated.

Table H3: Temperature reactions: Saanens not treated.

Table H4: Temperature reactions: Indigenous goats.

Table H5: Temperature reactions: Crossbred goats.

Table H6: Temperature reactions: Three-quarter Saanens.

Table H7: Breed comparison for mean temperature before heartwater (T\_BEF)

Table H8: Breed comparison for mean temperature at day of rise (T\_RISE)

Table H9: Breed comparison for day of temperature rise above 40°C (D\_RISE)

Table H10: Breed comparison for peak temperature (T\_PEAK)

Table H11: Breed comparison for peak temperature (T\_PEAK): All animals that died

Table H12: Breed comparison for day of peak temperature (D\_PEAK):

Table H13: Breed comparison for degrees rise in temperature (T\_UP)

Table H14: Breed comparison for degrees rise in temperature (T\_UP): for the year 1992 only.

Table H15: Breed comparison for day of temperature drop (D\_DROP):

Table H16: Breed comparison for days from peak to temperature drop (D\_PTOD):

Table H17: Breed comparison for days from temperature rise to drop (D\_RTOD):

Table H18: Breed comparison for day of death (D\_DEATH):

Table H19: A comparison of peak temperature for goats that died and those that survived: All goats

Table H20: A comparison of peak temperature for goats that died and those that survived: Indigenous

Table H21: A comparison of peak temperature for goats that died and those that survived: Crossbred

Table H22: A comparison of peak temperature for goats that died and those that survived: Three-quarter Saanen goats.

Table H23: Goats with heartwater: year effects (untreated goats): temperature reaction.

Table H24: A comparison of Saanen goats treated or not: temperature before reaction (T\_BEF).

Table H25: A comparison of Saanen goats treated or not: temperature at day of rise (T\_RISE).

Table H26: A comparison of Saanen goats treated or not: day of rise in temperature (D\_RISE)

Table H27: A comparison of Saanen goats treated or not: temperature at peak (T\_PEAK).

Table H28: A comparison of Saanen goats treated or not: day of peak temperature (D\_PEAK)

Table H29: A comparison of Saanen goats treated or not: temperature rise (T\_UP).

Table H1: Goats with heartwater: Pre-febrile temperatures:  
morning and afternoon (means  $\pm$  SE)

Groups	Goats	Morning $^{\circ}\text{C}$	Afternoon $^{\circ}\text{C}$
1991: Saanen: females	8	38.7 $\pm$ 0.30	39.3 $\pm$ 0.28
1991: Crossbred: males	5 3	38.8 $\pm$ 0.27 38.8 $\pm$ 0.25	39.5 $\pm$ 0.22 39.4 $\pm$ 0.18
females	8	38.8 $\pm$ 0.26	39.5 $\pm$ 0.21
all			
1991: Indigenous: males	2 6	39.0 $\pm$ 0.32 38.8 $\pm$ 0.25	39.6 $\pm$ 0.18 39.5 $\pm$ 0.35
females	8	38.8 $\pm$ 0.29	39.5 $\pm$ 0.29
all			
1992: Crossbred: males	6 6	39.2 $\pm$ 0.26 39.0 $\pm$ 0.36	39.6 $\pm$ 0.25 39.5 $\pm$ 0.30
females	12	39.1 $\pm$ 0.34	39.6 $\pm$ 0.28
all			
1992: Indigenous: males	6 6	39.1 $\pm$ 0.37 39.0 $\pm$ 0.36	39.8 $\pm$ 0.34 39.5 $\pm$ 0.30
females	12	39.0 $\pm$ 0.37	39.6 $\pm$ 0.34
all			
1992: 3/4 Saanen: males	5 4	39.2 $\pm$ 0.31 39.1 $\pm$ 0.38	39.6 $\pm$ 0.36 39.5 $\pm$ 0.36
females	9	39.2 $\pm$ 0.34	39.6 $\pm$ 0.37
all			
1992: Saanen: treated males	4	39.1 $\pm$ 0.40	39.7 $\pm$ 0.27
females	5	38.7 $\pm$ 0.38	39.4 $\pm$ 0.31
all	9	38.9 $\pm$ 0.42	39.5 $\pm$ 0.33
1992: Saanen: untreated	1	39.3 $\pm$ 0.31	39.6 $\pm$ 0.23
males	1	39.1 $\pm$ 0.50	39.5 $\pm$ 0.27
females	2	39.2 $\pm$ 0.43	39.6 $\pm$ 0.25
both			
All goats: males	29	39.1 $\pm$ 0.35	39.6 $\pm$ 0.29
females	39	38.9 $\pm$ 0.38	39.4 $\pm$ 0.30
all	68	39.0 $\pm$ 0.37	39.5 $\pm$ 0.32
G36 (3/4 Saanen) - uninfected	1	38.8 $\pm$ 0.33	39.2 $\pm$ 0.37



Table H2: Temperature reactions: all goats not treated.

Variable	n	Means	SD	min.	max.
Mean temp. before (°C)	59	39.03	0.21	38.60	39.50
Temp.: day of rise (°C)		40.59	0.45	40.00	41.90
Day of temp. rise (D)		10.17	0.67	8.00	11.00
Peak temp. (°C)		41.74	0.34	41.10	42.40
Day of peak temp. (D)		11.93	0.94	10.00	14.00
Temp. rise (°C)		2.71	0.28	2.10	3.30
Day of temp. drop (D)	32	15.66	0.97	14.00	17.00
Days: peak to drop (d)		3.56	0.84	2.00	5.00
Days: rise to drop (d)		5.34	1.00	4.00	7.00
Day of death (D)	27	15.11	1.69	12.00	19.00

Table H3: Temperature reactions: Saanens not treated.

Variable	n	Means	SD	min.	max.
Mean temp. before (°C)	10	38.87	0.23	38.70	39.40
Temp.: day of rise (°C)		40.56	0.34	40.00	41.00
Day of temp. rise (D)		10.20	0.42	10.00	11.00
Peak temp. (°C)		41.59	0.41	41.10	42.30
Day of peak temp. (D)		11.60	0.84	11.00	13.00
Temp. rise (°C)		2.72	0.32	2.20	3.20
Day of temp. drop (D)	0	-	-	-	-
Days: peak to drop (d)		-	-	-	-
Days: rise to drop (d)		-	-	-	-
Day of death (D)	10	14.40	1.78	12.00	18.00

Table H4: Temperature reactions: Indigenous goats.

Variable	n	Means	SD	min.	max.
Mean temp. before (°C)	20	39.02	0.19	38.60	39.50
Temp.: day of rise (°C)		40.51	0.43	40.00	41.90
Day of temp. rise (D)		10.35	0.49	8.00	11.00
Peak temp. (°C)		41.66	0.28	41.10	42.40
Day of peak temp. (D)		12.20	0.95	10.00	14.00
Temp. rise (°C)		2.64	0.22	2.10	3.30
Day of temp. drop (D)	19	15.79	0.85	14.00	17.00
Days: peak to drop (d)		3.53	0.77	2.00	5.00
Days: rise to drop (d)		5.42	0.84	4.00	7.00
Day of death (D)	1	17.00	-	17.00	17.00

Table H5: Temperature reactions: Crossbred goats.

Variable	n	mean	SD	min.	max.
Mean temp. before (°C)	20	39.06	0.22	38.70	39.40
Temp.: day of rise (°C)		40.62	0.46	40.00	41.40
Day of temp. rise (D)		10.20	0.70	9.00	11.00
Peak temp. (°C)		41.72	0.25	41.10	42.10
Day of peak temp. (D)		11.80	0.89	10.00	13.00
Temp. rise (°C)		2.66	0.28	2.10	3.20
Day of temp. drop (D)	11	15.27	1.10	14.00	17.00
Days: peak to drop (d)		3.55	1.04	2.00	5.00
Days: rise to drop (d)		5.00	1.18	4.00	7.00
Day of death (D)	9	15.33	1.41	13.00	18.00

Table H6: Temperature reactions: Three-quarter Saanens.

Variable	n	mean	SD	min.	max.
Mean temp. before (°C)	9	39.19	0.11	39.00	39.30
Temp.: day of rise (°C)		40.76	0.62	40.00	41.90
Day of temp. rise (D)		9.67	1.00	8.00	11.00
Peak temp. (°C)		42.18	0.25	41.70	42.40
Day of peak temp. (D)		12.00	1.12	11.00	14.00
Temp. rise (°C)		2.99	0.24	2.60	3.30
Day of temp. drop (D)	2	16.50	0.71	16.00	17.00
Days: peak to drop (d)		4.00	0.00	4.00	4.00
Days: rise to drop (d)		6.50	0.71	6.00	7.00
Day of death (D)	7	15.57	1.81	14.00	19.00

Table H7: Breed comparison for mean temperature before heartwater (T\_BEF)  
[Bonferroni (Dunn) T tests]

Breed	n	Mean T_BEF (°C)	Bon grouping
Saanen	10	39.87	B
Indigenous	20	39.01	A B
Crossbred	20	39.06	A B
Three-quarter Saanen	9	39.19	A

[Means with the same letter are not significantly different (P<0.05)]

Table H8: Breed comparison for mean temperature at day of rise (T\_RISE)  
[Bonferroni (Dunn) T tests]

Breed	n	Mean T_RISE (°C)	Bon grouping
Saanen	10	40.56	A
Indigenous	20	40.50	A
Crossbred	20	40.62	A
Three-quarter Saanen	9	40.76	A

[Means with the same letter are not significantly different (P<0.05)]

Table H9: Breed comparison for day of temperature rise above 40°C (D\_RISE)  
[Bonferroni (Dunn) T tests]

Breed	n	Day D_RISE	Bon grouping
Saanen	10	10.20	A
Indigenous	20	10.35	A
Crossbred	20	10.20	A
Three-quarter Saanen	9	9.67	A

[Means with the same letter are not significantly different (P<0.05)]

Table H10: Breed comparison for peak temperature (T\_PEAK)  
[Bonferroni (Dunn) T tests]

Breed	n	Peak Temp. (°C)	Bon grouping
Saanen	10	41.59	B
Indigenous	20	41.65	B
Crossbred	20	41.71	B
Three-quarter Saanen	9	42.18	A

[Means with the same letter are not significantly different (P<0.05)]

Table H11: Breed comparison for peak temperature (T\_PEAK): All animals that died  
[Bonferroni (Dunn) T tests]

Breed	n	Peak Temp. (°C)	Bon grouping
Saanen	10	41.59	A
Indigenous	1	41.50	A
Crossbred	20	41.76	A
Three-quarter Saanen	9	42.20	A

[Means with the same letter are not significantly different (P<0.05)]

Table H12: Breed comparison for day of peak temperature (D\_PEAK):  
[Bonferroni (Dunn) T tests]

Breed	n	Day of Peak Temp.	Bon grouping
Saanen	10	11.60	A
Indigenous	20	12.20	A
Crossbred	20	11.80	A
Three-quarter Saanen	9	12.00	A

[Means with the same letter are not significantly different (P<0.05)]

Table H13: Breed comparison for degrees rise in temperature (T\_UP)  
[Bonferroni (Dunn) T tests]

Breed	n	Temp. Rise (°C)	Bon grouping
Saanen	10	2.72	B A
Indigenous	20	2.64	B
Crossbred	20	2.66	B
Three-quarter Saanen	9	2.99	A

[Means with the same letter are not significantly different (P<0.05)]

Table H14: Breed comparison for degrees rise in temperature (T\_UP):  
for the year 1992 only.  
[Bonferroni (Dunn) T tests]

Breed	n	Temp. Rise (°C)	Bon grouping
Saanen	2	3.00	A
Indigenous	12	2.73	A
Crossbred	12	2.59	A
Three-quarter Saanen	9	2.99	A

[Means with the same letter are not significantly different (P<0.05)]

Table H15: Breed comparison for day of temperature drop (D\_DROP):  
[Bonferroni (Dunn) T tests]

Breed	n	Day of Temp.Drop	Bon grouping
Saanen	0	-	
Indigenous	19	15.79	A
Crossbred	11	15.27	A
Three-quarter Saanen	2	16.50	A

[Means with the same letter are not significantly different (P<0.05)]

Table H16: Breed comparison for days from peak to temperature drop (D\_PTOD): [Bonferroni (Dunn) T tests]

Breed	n	Days from peak temp. to drop	Bon grouping
Saanen	0	-	
Indigenous	19	3.53	A
Crossbred	11	3.55	A
Three-quarter Saanen	2	4.00	A

[Means with the same letter are not significantly different (P<0.05)]

Table H17: Breed comparison for days from temperature rise to drop (D\_RTOD): [Bonferroni (Dunn) T tests]

Breed	n	Days from peak temp. to drop	Bon grouping
Saanen	0	-	
Indigenous	19	5.42	A
Crossbred	11	5.00	A
Three-quarter Saanen	2	6.50	A

[Means with the same letter are not significantly different (P<0.05)]

Table H18: Breed comparison for day of death (D\_DEATH): [Bonferroni (Dunn) T tests]

Breed	n	Day of Death	Bon grouping
Saanen	10	14.40	A
Indigenous	1	17.00	A
Crossbred	9	15.33	A
Three-quarter Saanen	7	15.57	A

[Means with the same letter are not significantly different (P<0.05)]

Table H19: A comparison of peak temperature for goats that died and those that survived.  
All goats. [t-test]

Group	n	Mean (°C)	SD	SE	Min.	Max.
Died	27	41.80	0.410	0.079	41.1	42.4
Survived	32	41.70	0.267	0.047	41.3	42.2

Variances	t	DF	P
Unequal	1.1207	43.3	0.2686
Equal	1.1606	57.0	0.2506

Table H20: A comparison of peak temperature for goats that died and those that survived.  
Indigenous goats. [t-test]

Group	n	Mean (°C)	SD	SE	Min.	Max.
Died	1	41.50	-	-	41.5	41.5
Survived	19	41.66	2.812	6.453	41.3	42.2

Variances	t	DF	P
Unequal	-	-	-
Equal	-0.5654	18.0	0.5788

Table H21: A comparison of peak temperature for goats that died and those that survived.  
Crossbred goats. [t-test]

Group	n	Mean (°C)	SD	SE	Min.	Max.
Died	9	41.76	0.296	0.099	41.1	42.1
Survived	11	41.68	0.204	0.062	41.3	42.0

Variances	t	DF	P
Unequal	0.6337	13.8	0.5367
Equal	0.6581	18.0	0.5188

Table H22: A comparison of peak temperature for goats that died and those that survived.  
Three-quarter Saanen goats. [t-test]

Group	n	Mean (°C)	SD	SE	Min.	Max.
Died	7	42.20	0.283	0.107	41.7	42.4
Survived	2	42.10	0.141	0.100	42.0	42.2

Variances	t	DF	P
Unequal	0.6831	3.8	0.5347
Equal	0.4667	7.0	0.6549

Table H23: Goats with heartwater: year effects (untreated goats): temperature reaction.  
[Morning temperatures; means  $\pm$  se]

Year/ breed	Goats		Temperature rise		Peak temperature		Temp. fall
	No	Die d	Day	°C	Day	°C	Day
1991 Crossbred Indigenous	8	2	10.4 $\pm$ 0.5	40.6 $\pm$ 0.5	11.6 $\pm$ 1.1	41.6 $\pm$ 0.2	15.3 $\pm$ 1.4
	8	1	10.2 $\pm$ 0.4	40.5 $\pm$ 0.5	12.2 $\pm$ 1.3	41.4 $\pm$ 0.2	15.7 $\pm$ 1.1
Both breeds	16	3	10.3 $\pm$ 0.5	40.5 $\pm$ 0.5	11.9 $\pm$ 1.2	41.5 $\pm$ 0.2	15.5 $\pm$ 1.2
1992 Crossbred Indigenous	12	7	10.1 $\pm$ 0.8	40.6 $\pm$ 0.4	11.0 $\pm$ 0.8	41.8 $\pm$ 0.3	15.2 $\pm$ 0.8
	12	0	10.4 $\pm$ 0.5	40.5 $\pm$ 0.4	12.2 $\pm$ 0.7	41.8 $\pm$ 0.2	15.8 $\pm$ 0.7
Both breeds	24	7	10.2 $\pm$ 0.7	40.6 $\pm$ 0.4	12.0 $\pm$ 0.7	41.8 $\pm$ 0.2	15.6 $\pm$ 0.8



Table H24: A comparison of Saanen goats treated or not: temperature before reaction (T\_BEF).

[t-test]

Group	n	Mean (°C)	SD	SE	Min.	Max.
Treated	10	38.87	0.226	0.072	38.7	39.4
Not treated	9	38.93	0.328	0.109	38.5	39.5

Variances	t	DF	P
Unequal	-0.4848	14	0.6353
Equal	-0.4945	17	0.6273

Table H25: A comparison of Saanen goats treated or not: temperature at day of rise (T\_RISE).

[t-test]

Group	n	Mean (°C)	SD	SE	Min.	Max.
Treated	10	40.56	0.337	0.107	40.0	41.0
Not treated	9	40.70	0.640	0.213	40.0	41.9

Variances	t	DF	P
Unequal	-0.5867	11.8	0.5684
Equal	-0.6056	17.0	0.5528

Table H26: A comparison of Saanen goats treated or not: day of rise in temperature (D\_RISE)

[t-test]

Group	n	Day	SD	SE	Min.	Max.
Treated	10	10.20	0.422	0.133	10.0	11.0
Not treated	9	9.33	1.225	0.408	8.0	11.0

Variances	t	DF	P
Unequal	2.0180	9.7	0.0722
Equal	2.1089	17.0	0.0501

Table H27: A comparison of Saanen goats treated or not: temperature at peak (T\_PEAK).  
[t-test]

Group	n	Mean (°C)	SD	SE	Min.	Max.
Treated	10	41.59	0.412	0.130	41.1	42.3
Not treated	9	41.70	0.255	0.085	41.3	42.1

Variances	t	DF	P
Unequal	-0.7069	15.2	0.4903
Equal	-0.6896	17.0	0.4998

Table H28: A comparison of Saanen goats treated or not: day of peak temperature (D\_PEAK).  
[t-test]

Group	n	Day	SD	SE	Min.	Max.
Treated	10	11.60	0.843	0.267	11.0	13.0
Not treated	9	11.33	0.707	0.236	10.0	12.0

Variances	t	DF	P
Unequal	0.7493	16.9	0.4640
Equal	0.7420	17.0	0.4682

Table H29: A comparison of Saanen goats treated or not: temperature rise (T\_UP).  
[t-test]

Group	n	Mean (°C)	SD	SE	Min.	Max.
Treated	10	2.72	0.319	0.101	2.20	3.20
Not treated	9	2.77	0.342	0.114	2.00	3.10

Variances	t	DF	P
Unequal	-0.3062	16.4	0.7633
Equal	-0.3074	17.0	0.7623