

Supplement table 1: Univariate model outputs for daily activities during a foot-and-mouth disease SAT1 experimental infection study of indigenous South African goats. Significant results are indicated in bold.

Feeding outcome (proportion of observation sessions)

Variable	Estimate (95% CI)	Std error	t value	p value
Phase				
<i>P1</i>	reference			
<i>P2</i>	0.081 (-4.129, 4.291)	2.149	0.038	0.970
<i>P3</i>	0.595 (-3.616, 4.805)	2.149	0.277	0.783
Stable				
4	reference			
5	-0.025 (-3.616, 4.805)	4.443	-0.006	0.996
1	6.667 (-1.321, 14.655)	4.269	1.562	0.128
2	0.082(-8.053, 8.216)	4.348	0.019	0.985
3	-6.800 (-16.024, 2.424)	4.929	-1.379	0.177
Sex				
<i>Female</i>	Reference			
<i>Male</i>	2.667 (-2.799, 8.133)	2.793	0.955	0.346
Weight				
<i>Weight (kg)</i>	-0.059 (-0.541, 0.421)	0.241	-0.247	0.805
Size				
<i>Size(<20kg)</i>	-1.125(-5.645, 3.353)	2.270	-0.496	0.621
Sick / Injury				
<i>None</i>	Reference			
<i>FMD</i>	1.786 (-4.575, 8.077)	3.226	0.554	0.581
<i>Other</i>	0.534(-5.714, 6.752)	3.189	0.167	0.867
Keratoconjunctivitis				
<i>No</i>	Reference			
<i>Yes</i>	8.865 (-1.325, 18.816)	5.079	1.745	0.084
Respiratory				
<i>No</i>	Reference			
<i>Yes</i>	0.259 (-5.455, 5.980)	2.912	0.089	0.929
FMD any				
<i>No</i>	Reference			
<i>Yes</i>	1.703 (-4.581, 7.917)	3.172	0.537	0.593
FMD_ foot				

No	Reference			
Yes	3.185 (-7.000, 13.354)	5.178	0.615	0.540

Any sick

No	Reference			
Yes	1.155 (-3.653, 5.907)	2.428	0.476	0.635

Walking outcome (proportion of observation sessions)

Variable	Estimate (95% CI)	Std error	t value	p value
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Phase

P1	Reference			
P2	-0.5676 (-2.347, 1.212)	0.9088	-0.625	0.534
P3	-0.7568 (-2.536, 1.022)	0.9088	-0.833	0.407

Stable*

- 4 Singular fit
- 5
- 1
- 2
- 3

Sex

Female	Reference			
Male	-0.5585 (-2.000, 0.908)	0.7424	-0.752	0.454

Weight

Weight (kg)	-0.069 (-0.213, 0.077)	0.07428	-0.933	0.353
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Size

Size(<20kg)	-0.243 (-1.768, 1.219)	0.7571	-0.321	0.748
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Sick / Injury

None	Reference			
FMD	-0.701 (-3.118, 1.859)	1.258	-0.557	0.578
Other	-1.264 (-3.613, 0.986)	1.169	-1.082	0.282

Keratoconjunctivitis

No	Reference			
Yes	1.521 (-2.557, 5.371)	1.991	0.764	0.447

Respiratory

No	Reference			
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	Yes	0.602 (-1.617, 2.705)	1.087	0.554	0.581
FMD any					
	No	Reference			
	Yes	-0.560 (-2.974, 1.995)	1.249	-0.448	0.655
FMD_ foot					
	No	Reference			
	Yes	-1.2298(-5.241, 2.644)	1.999	-0.615	0.540
Any sick					
	No	Reference			
	Yes	-1.007(-2.770, 0.766)	0.902	-1.117	0.266

Resting outcome (proportion of observation sessions)

Variable		Estimate (95% CI)	Std error	t value	p value
Phase					
	P1	Reference			
	P2	2.270 (-2.769, 7.310)	2.573	0.882	0.381
	P3	-0.081 (-5.121, 4.958)	2.573	-0.032	0.975
Stable					
	4	Reference			
	5	8.300 (-1.567, 18.167)	5.274	1.574	0.125
	1	7.933 (-1.547, 17.413)	5.067	1.566	0.127
	2	17.948 (8.293, 27.602)	5.160	3.478	0.001
	3	7.667 (-3.280, 18.613)	5.851	1.310	0.199
Sex					
	Female	Reference			
	Male	-8.518 (-14.684, -2.350)	3.152	-2.703	0.011
Weight					
	Weight (kg)	0.2728 (-0.301, 0.846)	0.2917	0.935	0.352
Size					
	Size(<20kg)	3.303 (-2.060, 8.692)	2.738	1.206	0.230
Sick / Injury					
	None	Reference			
	FMD	-0.6635 (-8.285, 7.159)	3.903	-0.170	0.865
	Other	6.0064 (-1.693, 13.995)	3.841	1.564	0.121
Keratoconjunctivitis					

	<i>No</i>	Reference			
	<i>Yes</i>	-4.089 (-16.531, 9.173)	6.222	-0.657	0.513
Respiratory					
	<i>No</i>	Reference			
	<i>Yes</i>	4.232 (-2.713, 11.434)	3.514	1.205	0.231
FMD any					
	<i>No</i>	Reference			
	<i>Yes</i>	-1.773 (-9.271, 5.869)	3.830	0.463	0.645
FMD_ foot					
	<i>No</i>	Reference			
	<i>Yes</i>	-3.286 (-15.572, 9.029)	6.258	-0.525	0.601
Any sick					
	<i>No</i>	Reference			
	<i>Yes</i>	2.609 (-3.293, 8.825)	2.944	0.886	0.378

*Unable to include in statistical models due to overfitting of data.

Supplement table 2: Univariate model outputs for social activities during a foot-and-mouth disease SAT1 experimental infection study of indigenous South African goats. Significant results are indicated in bold.

Feeding outcome (frequency per hour transformed using the natural logarithm)

Variable	Estimate (95% CI)	Std error	t value	p value
Phase				
<i>P1</i>	Reference			
<i>P2</i>	0.032 (-0.284, 0.348)	0.162	0.200	0.842
<i>P3</i>	0.479 (0.162, 0.795)	0.162	2.967	0.004
Stable*				
4	Singular fit			
5				
1				
2				
3				
Sex				
<i>Female</i>	Reference			
<i>Male</i>	0.138 (-0.232, 0.507)	0.189	0.729	0.471
Weight				
<i>Weight (kg)</i>	0.030 (-0.003, 0.063)	0.017	1.765	0.082
Size				
<i>Size(<20kg)</i>	-0.373 (-0.696, -0.047)	0.165	-2.255	0.026
Sick / Injury				
<i>None</i>	Reference			
<i>FMD</i>	0.003 (-0.493, 0.486)	0.247	0.014	0.989
<i>Other</i>	-0.524 (-0.992, -0.053)	0.240	-2.183	0.031
Keratoconjunctivitis				
<i>No</i>	Reference			
<i>Yes</i>	-0.308 (-1.107, 0.484)	0.405	-0.76	0.449
Respiratory				
<i>No</i>	Reference			
<i>Yes</i>	-0.4561 (-0.890, -0.008)	0.220	-2.072	0.041
FMD any				
<i>No</i>	Reference			
<i>Yes</i>	0.076 (-0.432, 0.567)	0.249	0.304	0.762

FMD_ foot					
	<i>No</i>	Reference			
	<i>Yes</i>	0.128 (-0.668, 0.923)	0.405	0.316	0.752

Any sick					
	<i>No</i>	Reference			
	<i>Yes</i>	-0.275 (-0.644, 0.089)	0.186	-1.478	0.142

Resting outcome (frequency per hour transformed using the natural logarithm)

Variable	Estimate (95% CI)	Std error	t value	p value
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Phase					
	<i>P1</i>	Reference			
	<i>P2</i>	0.049 (-0.172, 0.269)	0.113	0.430	0.668
	<i>P3</i>	0.691 (0.469, 0.911)	0.113	6.125	<0.001

Stable*					
	4	Singular fit			
	5				
	1				
	2				
	3				

Sex					
	<i>Female</i>	Reference			
	<i>Male</i>	0.007 (-0.217, 0.223)	0.111	0.062	0.95

Weight					
	<i>Weight (kg)</i>	0.042 (0.021, 0.062)	0.011	3.923	<0.001

Size					
	<i>Size(<20kg)</i>	-0.309 (-0.525, -0.091)	0.110	-2.80	0.006

Sick / Injury					
	<i>None</i>	Reference			
	<i>FMD</i>	0.281 (-0.061, 0.622)	0.175	1.600	0.112
	<i>Other</i>	-0.691 (-1.008, -0.372)	0.163	-4.237	<0.001

Keratoconjunctivitis					
	<i>No</i>	Reference			
	<i>Yes</i>	-0.7485 (-1.319, -0.175)	0.291	-2.574	0.011

Respiratory					
	<i>No</i>	Reference			
	<i>Yes</i>	-0.615 (-0.911, -0.313)	0.152	-4.052	<0.001

FMD any					
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<i>No</i>	Reference			
<i>Yes</i>	0.467 (0.089, 0.818)	0.182	2.562	0.012

FMD_ foot

<i>No</i>	Reference			
<i>Yes</i>	0.557 (-0.048, 1.128)	0.296	1.879	0.063

Any sick

<i>No</i>	Reference			
<i>Yes</i>	-0.219 (-0.494, 0.040)	0.135	-1.629	0.106

Agonistic behaviour outcome (rank transformed)

Variable	Estimate (95% CI)	Std error	t value	p value
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Phase

<i>P1</i>	Reference			
<i>P2</i>	1.338 (-7.267, 9.942)	4.393	0.305	0.762
<i>P3</i>	14.878 (6.273, 23.483)	4.393	3.387	0.001

Stable

<i>4</i>	Reference			
<i>5</i>	10.458 (-19.833, 40.749)	16.189	0.646	0.523
<i>1</i>	15.300 (-13.802, 44.402)	15.554	0.984	0.333
<i>2</i>	1.852 (-27.785, 31.488)	15.840	0.117	0.908
<i>3</i>	-2.567 (-36.171, 31.038)	17.960	-0.143	0.887

Sex

<i>Female</i>	Reference			
<i>Male</i>	10.927 (-6.756, 28.610)	9.037	1.209	0.235

Weight

<i>Weight (kg)</i>	3.335 (2.244, 4.426)	0.557	5.986	<0.001
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Size

<i>Size(<20kg)</i>	-26.123 (-36.730, -15.757)	5.248	-4.978	<0.001
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Sick / Injury

<i>None</i>	Reference			
<i>FMD</i>	-0.181 (-14.580, 14.044)	7.294	-0.025	0.980
<i>Other</i>	-17.872 (-32.506, -3.410)	7.416	-2.410	0.018

Keratoconjunctivitis

<i>No</i>	Reference			
<i>Yes</i>	-10.245 (-34.570, 13.405)	12.072	-0.849	0.398

Respiratory					
	<i>No</i>	Reference			
	<i>Yes</i>	-21.501 (-34.350, -8.747)	6.502	-3.307	0.001
FMD any					
	<i>No</i>	Reference			
	<i>Yes</i>	2.875 (-11.673, 17.236)	7.326	0.392	0.696
FMD_ foot					
	<i>No</i>	Reference			
	<i>Yes</i>	7.875 (-15.758, 31.903)	12.066	0.653	0.516
Any sick					
	<i>No</i>	Reference			
	<i>Yes</i>	-8.893 (-20.318, 2.284)	5.707	-1.558	0.123
Displaced outcome (rank transformed)					
Variable		Estimate (95% CI)	Std error	t value	p value
Phase					
	<i>P1</i>	Reference			
	<i>P2</i>	-3.811 (-13.960, 6.338)	5.182	-0.735	0.464
	<i>P3</i>	-5.351 (-15.500, 4.798)	5.182	-1.033	0.305
Stable					
	<i>4</i>	Reference			
	<i>5</i>	1.275 (-25.689, 28.239)	14.411	0.088	0.930
	<i>1</i>	4.700 (-21.206, 30.606)	13.846	0.339	0.736
	<i>2</i>	-9.081 (-35.463, 17.300)	14.100	-0.644	0.524
	<i>3</i>	-11.867 (-41.780, 18.047)	15.988	-0.742	0.463
Sex					
	<i>Female</i>	Reference			
	<i>Male</i>	0.379 (-15.735, 16.492)	8.235	0.046	0.964
Weight					
	<i>Weight (kg)</i>	-1.262 (-2.493, -0.031)	0.629	-2.006	0.048
Size					
	<i>Size(<20kg)</i>	2.782 (-8.787, 14.390)	5.912	0.47	0.639
Sick / Injury					
	<i>None</i>	Reference			
	<i>FMD</i>	1.854 (-13.738, 17.542)	7.987	0.232	0.817

<i>Other</i>	-9.405 (-25.219, 6.214)	8.007	-1.175	0.243
Keratoconjunctivitis				
<i>No</i>	Reference			
<i>Yes</i>	-17.850 (-42.832, 7.298)	12.735	-1.402	0.164
Respiratory				
<i>No</i>	Reference			
<i>Yes</i>	-4.545 (-18.901, 9.727)	7.279	-0.624	0.534
FMD any				
<i>No</i>	Reference			
<i>Yes</i>	3.359 (-12.061, 18.919)	7.863	0.427	0.670
FMD_ foot				
<i>No</i>	Reference			
<i>Yes</i>	-18.52 (-44.383, 6.621)	12.83	-1.444	0.152
Any sick				
<i>No</i>	Reference			
<i>Yes</i>	-3.726	6.091	-0.612	0.542

Displacing outcome (rank transformed)

Variable	Estimate (95% CI)	Std error	t value	p value
Phase				
<i>P1</i>	Reference			
<i>P2</i>	-10.554 (-21.246, 0.138)	5.459	-1.933	0.057
<i>P3</i>	-9.392 (-20.084, 1.300)	5.459	-1.720	0.090
Stable				
4	Reference			
5	5.900 (-20.390, 32.190)	14.051	0.420	0.677
1	12.833 (-12.425, 38.092)	13.500	0.951	0.349
2	-2.322 (-28.044, 23.400)	13.747	-0.169	0.867
3	-4.533 (-33.699, 24.633)	15.588	-0.291	0.773
Sex				
<i>Female</i>	Reference			
<i>Male</i>	5.950 (-9.709, 21.609)	8.003	0.744	0.462
Weight				
<i>Weight (kg)</i>	0.873 (-0.430, 2.175)	0.646	1.353	0.180

Size					
	<i>Size(<20kg)</i>	-10.179 (-22.489, 1.926)	6.062	-1.679	0.096
Sick / Injury					
	<i>None</i>	Reference			
	<i>FMD</i>	-1.944 (-18.603, 14.602)	8.479	-0.229	0.819
	<i>Other</i>	-10.740 (-27.229, 5.769)	8.447	-1.271	0.207
Keratoconjunctivitis					
	<i>No</i>	Reference			
	<i>Yes</i>	-18.40 (-45.628, 8.336)	13.65	-1.347	0.181
Respiratory					
	<i>No</i>	Reference			
	<i>Yes</i>	-0.555 (-15.735, 14.666)	7.737	-0.072	0.943
FMD any					
	<i>No</i>	Reference			
	<i>Yes</i>	-0.222 (-16.841, 16.242)	8.399	-0.026	0.979
FMD_ foot					
	<i>No</i>	Reference			
	<i>Yes</i>	16.441 (-10.321, 43.360)	13.644	1.205	0.231
Any sick					
	<i>No</i>	Reference			
	<i>Yes</i>	-6.366 (-19.049, 6.257)	6.440	-0.989	0.325

Yield outcome (rank transformed)

Variable	Estimate (95% CI)	Std error	t value	p value	
Phase					
	<i>P1</i>	Reference			
	<i>P2</i>	1.554 (-6.381, 9.489)	4.051	0.384	0.702
	<i>P3</i>	13.689 (5.753, 21.624)	4.051	3.379	0.001
Stable					
	<i>4</i>	Reference			
	<i>5</i>	9.083 (-21.532, 39.699)	16.363	0.555	0.583
	<i>1</i>	11.217 (-18.198, 40.631)	15.721	0.713	0.481

	2	-6.019 (-35.973, 23.935)	16.009	-0.376	0.709
	3	-10.100 (-44.065, 23.865)	18.153	-0.556	0.582
Sex					
	<i>Female</i>	Reference			
	<i>Male</i>	-22.972 (-39.848, -6.094)	8.625	-2.663	0.011
Weight					
	<i>Weight (kg)</i>	-0.6638 (-2.072, 0.670)	0.6158	-1.078	0.283
Size					
	<i>Size(<20kg)</i>	0.170 (-10.898, 11.947)	5.453	0.031	0.975
Sick / Injury					
	<i>None</i>	Reference			
	<i>FMD</i>	6.940 (-4.947, 18.969)	6.094	1.139	0.258
	<i>Other</i>	-25.203 (-37.507, -12.496)	6.278	-4.015	<0.001
Keratoconjunctivitis					
	<i>No</i>	Reference			
	<i>Yes</i>	3.501 (-18.438, 25.991)	11.203	0.313	0.755
Respiratory					
	<i>No</i>	Reference			
	<i>Yes</i>	-21.046 (-32.500, -9.176)	5.840	-3.604	<0.001
FMD any					
	<i>No</i>	Reference			
	<i>Yes</i>	11.535 (-1.599, 24.745)	6.685	1.726	0.088
FMD_ foot					
	<i>No</i>	Reference			
	<i>Yes</i>	-5.738 (-28.349, 16.216)	11.206	-0.512	0.610
Any sick					
	<i>No</i>	Reference			
	<i>Yes</i>	-7.828 (-18.106, 2.802)	5.241	-1.494	0.139

*Unable to include in statistical models due to overfitting of data.