Table S1. Sample population characteristics, modified from Herzog et al 2019 [1]

		n (%)	PPRV Seropositive n (%, *95% CI*)	Adjusted Seroprevalence†† (%, 95% CI)
Total		7,496	1,580 (21.1%, *20.2-22.0%*)	
Species				
	Sheep	2,080 (27.7%)	545 (26.2%, *24.3-28.1%*)	29.0%
	Goats	2,419 (32.3%)	696 (28.8%, *27.0-30.6%*)	34.8%
	Cattle	2,997 (40%)	339 (11.3%, *10.2-12.5%*)	22%
Sex				
	Female	5,508 (73.5%)	1,393 (25.3%, *24.1-26.4%*)	
	Male	1,988 (26.5%)	187 (9.4%)	
Management system				
	Agropastoral (AP)	2,898 (38.7%)	169 (5.8%, *5.0-6.7%*)	
	Pastoral (P)	4,598 (61.3%)	1,411 (30.7%, *29.4-32.0%*)	
Age Group†				
	Temporary teeth	1,869 (24.9%)	106 (5.7%, *4.7-6.8%*)	
	1 pair	757 (10.1%)	68 (9.0%, *7.0-11.2%*)	
	2 pair	666 (8.9%)	88 (13.2%, *10.7-16.0%*)	
	3 pair	483 (6.4%)	97 (20.1%, *16.6-23.9%*)	
	4 pair	3,307 (44.1%)	1,088 (32.9%, 31.3-34.5%)	
	Full mouth + worn	414 (5.5%)	133 (32.1%, *27.6-36.9%*)	

† Age groups by dentition correspond to approximately the following ages in cattle: temporary teeth: 1 month to 1.5 years; 1 pair: 1.5-2.5 years; 2 pair: 2.5-3.5 years, 3 pair: 3.5-4.5 years, 4 pair: 4.5-7 years; full + worn: above 7 years. For sheep and goats: temporary teeth: < 1 year; 1 pair: 1-1.5 years; 2 pair: 1.5-2 years, 3 pair: 2-3 years, 4 pair: 3-5 years; full + worn: above 5 years.

†† Species specific sensitivity and specificity estimates from Logan et al 2019 (unpublished). Adjustment according to Rogan & Gladen 1978 [2].

CI : Confidence Interval

Table S2. Sample population distribution and apparent PPRV seroprevalence by dentition-based age group

	Age Group n (%)						Age Group PPRV Seropositive n (%, 95% CI)					
	1	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	**6**
Overall	1869 (24.9%)	757 (10.1%)	666 (8.9%)	483 (6.4%)	3307 (44.1%)	414 (5.5%)	106 (5.7%, 4.7-6.8%)	68 (9.0%, 7.0-11.2%)	88 (13.2%, 10.7-16.0%)	97 (20.1%, 16.6-23.9%)	1,088 (32.9%, 31.3-34.5%)	133 (32.1%, 27.6-36.9%)
Sheep	524 (25.2%)	277 (13.3%)	209 (10.0%)	94 (4.5%)	892 (42.9%)	84 (4.0%)	39 (7.4%, 5.3-10.0%)	31 (11.2%, 7.7-15.5%)	35 (16.8%, 12.0-22.5%)	26 (27.7%, 18.9-37.8%)	369 (41.4%, 38.1-44.7%)	45 (53.6%, 42.4-64.5%)
Goat	455 (18.8%)	239 (9.9%)	212 (8.7%)	161 (7.6%)	1211 (40.2%)	141 (6.3%)	29 (6.4%, 4.3-9.0%)	27 (11.3%, 7.6-16.0%)	35 (16.5%, 11.8-22.2%)	42 (26.1%, 19.5-33.6%)	497 (41.0%, 38.3-43.9%)	66 (46.8%, 38.4-55.4%)
Cattle	890 (29.7%)	241 (8.0%)	245 (8.2%)	228 (7.6%)	1204 (40.2%)	189 (6.3%)	38 (4.3%, 3.0-5.8%)	10 (4.2%, 2.0-7.5%)	18 (7.4%, 4.4-11.4%)	29 (12.7%, 8.7-17.8%)	222 (18.4%, 16.3-20.7%)	22 (11.6%, 7.4-17.1%)
Pastoral	1104 (24.0%)	474 (10.3%)	363 (7.9%)	274 (6.0%)	2154 (46.8%)	229 (5.0%)	90 (8.2%, 6.6-9.9%)	64 (13.5%, 10.6-16.9%)	79 (21.8%, 17.6-26.3%)	85 (31.0%, 25.6-36.9%)	972 (45.1%, 43.0-47.2%)	121 (52.8%, 46.1-59.4%)
Agro-pastoral	765 (26.4%)	283 (9.8%)	303 (10.5%)	209 (7.2%)	1153 (39.8%)	185 (6.4%)	16 (2.1%, 1.2-3.4%)	4 (1.4%, 0.4-3.6%)	9 (3.0%, 1.4-5.6%)	12 (5.7%, 3.0-9.8%)	116 (10.1%, 8.4-12.0%)	12 (6.5%, 3.4-11.1%)
Female	930 (16.9%)	462 (8.4%)	456 (8.3%)	346 (6.3%)	2946 (53.5%)	368 (6.7%)	59 (6.3%, 4.9-8.1%)	46 (10.0%, 7.4-13.1%)	69 (15.1%, 12.0-18.8%)	78 (22.5%, 18.2-27.3%)	1021 (34.7%, 33.0-36.4%)	120 (32.6%, 27.8-37.7%)
Male	939 (47.2%)	295 (14.8%)	210 (10.6%)	137 (6.9%)	361 (18.2%)	46 (2.3%)	47 (5.0%, 3.7-6.6%)	22 (7.5%, 4.7-11.1%)	19 (9.0%, 5.5-13.8%)	19 (13.9%, 8.6-20.8%)	67 (18.6%, 14.7-23.0%)	13 (28.3%, 16.0-43.5%)

Table S3. Sample population distribution and apparent PPRV seroprevalence by dentition-based age group and sex

	Age Group n (%)						Age Group PPRV seropositive n (%, 95% CI)					
	1	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	**6**
Overall	1869 (24.9%)	757 (10.1%)	666 (8.9%)	483 (6.4%)	3307 (44.1%)	414 (5.5%)	106 (5.7%, 4.7-6.8%)	68 (9.0%, 7.0-11.2%)	88 (13.2%, 10.7-16.0%)	97 (20.1%, 16.6-23.9%)	1,088 (32.9%, 31.3-34.5%)	133 (32.1%, 27.6-36.9%)
Female	930 (16.9%)	462 (8.4%)	456 (8.3%)	346 (6.3%)	2946 (53.5%)	368 (6.7%)	59 (6.3%, 4.9-8.1%)	46 (10.0%, 7.4-13.1%)	69 (15.1%, 12.0-18.8%)	78 (22.5%, 18.2-27.3%)	1021 (34.7%, 33.0-36.4%)	120 (32.6%, 27.8-37.7%)
Sheep	273 (17.0%)	186 (11.5%)	167 (10.4%)	79 (4.9%)	823 (51.1%)	83 (5.2%)	22 (8.1%, 5.1-11.9%)	24 (12.9%, 8.4-18.6%)	29 (17.4%, 11.9-24.0%)	22 (27.9%, 18.3-39.1%)	348 (42.3%, 38.9-45.7%)	45 (54.2%, 42.9-65.2%)
Goat	222 (11.6%)	155 (8.1%)	169 (8.9%)	135 (7.1%)	1103 (57.8%)	124 (6.5%)	17 (7.7%, 4.5-12.0%)	15 (9.7%, 5.5-15.5%)	29 (17.2%, 11.8-23.7%)	36 (26.7%, 19.4-35.0%)	465 (42.2%, 39.2-45.1%)	56 (45.2%, 36.2-54.3%)
Cattle	435 (21.9%)	121 (6.1%)	120 (6.0%)	132 (6.6%)	1020 (51.3%)	161 (8.1%)	20 (4.6%, 2.8-7.0%)	7 (5.8%, 2.4-11.6%)	11 (9.2%, 4.7-15.8%)	20 (15.2%, 9.5-22.4%)	208 (20.4%, 18.0-23.0%)	19 (11.8%, 7.3-17.8%)
Male	939 (47.2%)	295 (14.8%)	210 (10.6%)	137 (6.9%)	361 (18.2%)	46 (2.3%)	47 (5.0%, 3.7-6.6%)	22 (7.5%, 4.7-11.1%)	19 (9.0%, 5.5-13.8%)	19 (13.9%, 8.6-20.8%)	67 (18.6%, 14.7-23.0%)	13 (28.3%, 16.0-43.5%)
Sheep	251 (53.5%)	91 (19.4%)	42 (9.0%)	15 (3.2%)	69 (14.7%)	1 (0.2%)	17 (6.8%, 4.0-10.6%)	7 (7.7%, 3.1-15.2%)	6 (14.3%, 5.4-28.5%)	4 (26.7%, 7.8-55.1%)	21 (30.4%, 19.9-42.7%)	0 (0%, 0-97.5%)
Goat	233 (45.6%)	84 (16.4%)	43 (8.4%)	26 (5.1%)	108 (21.1%)	17 (3.3%)	12 (5.2%, 2.7-8.8%)	12 (14.3%, 7.6-23.6%)	6 (14.0%, 5.3-27.9%)	6 (23.1%, 9.0-43.6%)	32 (29.6%, 21.2-39.2%)	10 (58.8%, 32.9-81.6%)
Cattle	455 (45.1%)	120 (11.9%)	125 (12.4%)	96 (9.5%)	184 (18.3%)	28 (2.8%)	18 (4.0%, 2.4-6.2%)	3 (2.5%, 0.5-7.1%)	7 (5.6% , 2.3-11.2%)	9 (9.4%, 4.4-17.2%)	14 (7.6%, 4.2-12.4%)	3 (10.7%, 2.3-28.2%)

Table S4. Sample population distribution and apparent PPRV seroprevalence by dentition-based age group and management system

	Age Group n (%)						Age Group PPRV seropositive n (%, 95% CI)					
	1	**2**	**3**	**4**	**5**	**6**	**1**	**2**	**3**	**4**	**5**	**6**
Overall	1869 (24.9%)	757 (10.1%)	666 (8.9%)	483 (6.4%)	3307 (44.1%)	414 (5.5%)	106 (5.7%, 4.7-6.8%)	68 (9.0%, 7.0-11.2%)	88 (13.2%, 10.7-16.0%)	97 (20.1%, 16.6-23.9%)	1,088 (32.9%, 31.3-34.5%)	133 (32.1%, 27.6-36.9%)
Pastoral	1104 (24.0%)	474 (10.3%)	363 (7.9%)	274 (6.0%)	2154 (46.8%)	229 (5.0%)	90 (8.2%, 6.6-9.9%)	64 (13.5%, 10.6-16.9%)	79 (21.8%, 17.6-26.3%)	85 (31.0%, 25.6-36.9%)	972 (45.1%, 43.0-47.2%)	121 (52.8%, 46.1-59.4%)
Sheep	290 (21.0%)	192 (13.9%)	137 (9.9%)	62 (4.5%)	637 (46.1%)	64 (4.6%)	33 (11.4%, 8.0-15.6%)	31 (16.2%, 11.2-22.1%)	33 (24.1%, 17.2-32.1%)	24 (38.7%, 26.6-51.9%)	339 (53.2%, 49.3-57.1%)	43 (67.2%, 54.3-78.4%)
Goat	274 (18.2%)	154 (10.3%)	132 (8.8%)	106 (7.1%)	759 (50.5%)	77 (5.1%)	25 (9.1%, 6.0-13.1%)	26 (16.9%, 11.3-23.7%)	34 (25.8%, 18.5-34.1%)	39 (36.8%, 27.6-46.7%)	448 (59.0%, 55.4-62.5%)	60 (77.9%, 67.0-86.6%)
Cattle	540 (31.5%)	128 (7.5%)	94 (5.5%)	106 (6.2%)	758 (44.2%)	88 (5.1%)	32 (5.9%, 4.1-8.3%)	7 (5.5%, 2.2-10.9%)	12 (12.8%, 6.8-21.2%)	22 (20.8%, 13.5-29.7%)	185 (24.4%, 21.4-27.6%)	18 (20.5%, 12.6-30.4%)
Agro-pastoral	765 (26.4%)	283 (9.8%)	303 (10.5%)	209 (7.2%)	1153 (39.8%)	185 (6.4%)	16 (2.1%, 1.2-3.4%)	4 (1.4%, 0.4-3.6%)	9 (3.0%, 1.4-5.6%)	12 (5.7%, 3.0-9.8%)	116 (10.1%, 8.4-12.0%)	12 (6.5%, 3.4-11.1%)
Sheep	234 (33.5%)	85 (12.2%)	72 (10.3%)	32 (4.6%)	255 (36.5%)	20 (2.9%)	6 (2.6%, 0.9- 5.5%)	0 (0%, 0-4.2%)	2 (2.8%, 0.3-9.7%)	2 (6.3%, 0.8-20.8%)	30 (11.8%, 8.1-16.4%)	2 (10.0%, 1.2-31.7%)
Goat	181 (19.7%)	85 (9.3%)	80 (8.7%)	55 (6.0%)	452 (49.3%)	64 (7.0%)	4 (2.2%, 0.6-5.6%)	1 (1.2%, 0.03-6.4%)	1 (1.3%, 0.03-6.8%)	3 (5.5%, 1.1-15.1%)	49 (10.8%, 8.1-14.1%)	6 (9.4%, 3.5-19.3%)
Cattle	350 (27.3%)	113 (8.8%)	151 (11.8%)	122 (9.5%)	446 (34.8%)	101 (7.9%)	6 (1.7%, 0.6-3.7%)	3 (2.7%, 0.6-7.6%)	6 (4.0%, 1.5-8.4%)	7 (5.7%, 2.3-11.5%)	37 (8.3%, 5.9-11.3%)	4 (4.0%, 1.1-9.8%)

Table S5. Sheep nested models and AIC values for models combining six age groups

Model Age Intervals	Number of Intervals	AIC Values
0-1.5, 1.5-2, 2-3, 3-5, 5-8	5	47.11
0-1, 1-1.5, 1.5-2, 2-3, 3-5, 5-8 (maximal model)	6	45.9
0-2, 2-3, 3-5, 5-8	4	45.7
0-1, 1-2, 2-3, 3-5, 5-8	5	45.38
0-1, 1-3, 3-5, 5-8	4	45.07
0-1, 1-5, 5-8	3	44.69
0-1, 1-1.5, 1.5-2, 2-5, 5-8	5	44.01
0-1, 1-1.5, 1.5-2, 2-3, 3-8	5	44
0-1, 1-1.5, 1.5-3, 3-5, 5-8	5	43.9
0-3, 3-5, 5-8	3	43.62
0-1, 1-8	2	43.19
0-5, 5-8	2	43.16
0-1, 1-1.5, 1.5-5, 5-8	4	42.14
0-1, 1-1.5, 1.5-2, 2-8	4	42.75
0-1, 1-1.5, 1.5-8	3	41.61
0-8 (constant model)	**1**	**41.47**

Table S6. Goat nested models and AIC values for models combining six age groups

Model Age Intervals	Number of Intervals	AIC Values

0-1, 1-1.5, 1.5-8	3	231.23
0-1, 1-1.5, 1.5-2, 2-8	4	46.93
0-1, 1-1.5, 1.5-2, 2-3, 3-8	5	46.58
0-1, 1-8	2	46.44
0-1, 1-1.5, 1.5-2, 2-3, 3-5, 5-8 (maximal model)	6	45.85
0-1.5, 1.5-2, 2-3, 3-5, 5-8	5	45.04
0-8 (constant model)	1	44.93
0-1, 1-2, 2-3, 3-5, 5-8	5	44.7
0-1, 1-3, 3-5, 5-8	4	44.24
0-1, 1-1.5, 1.5-2, 2-5, 5-8	5	44
0-1, 1-1.5, 1.5-3, 3-5, 5-8	5	43.91
0-2, 2-3, 3-5, 5-8	4	43.22
0-1, 1-5, 5-8	3	42.67
0-5, 5-8	2	42.43
0-1, 1-1.5, 1.5-5, 5-8	4	42.38
0-3, 3-5, 5-8	**3**	**42.29**

Table S7. Cattle nested models and AIC values for models combining six age groups

Model Age Intervals	**Number of Intervals**	**AIC Values**
0-1.5, 1.5-10	2	103.45

0-10 (constant model)	1	67.66
0-1.5, 1.5-2.5, 2.5-10	3	63.32
0-7, 7-10	2	60.72
0-1.5, 1.5-4.5, 4.5-7, 7-10	4	60.52
0-3.5, 3.5-4.5, 4.5-7, 7-10	4	58.85
0-4.5, 4.5-7, 7-10	3	58.78
0-1.5, 1.5-2.5, 2.5-3.5, 3.5-10	4	58.22
0-1.5, 1.5-7, 7-10	3	58.09
0-2.5, 2.5-3.5, 3.5-4.5, 4.5-7, 7-10	5	58.06
0-1.5, 1.5-2.5, 2.5-3.5, 3.5-7, 7-10	5	57.52
0-1.5, 1.5-2.5, 2.5-7, 7-10	4	56.78
0-1.5, 1.5-2.5, 2.5-4.5, 4.5-7, 7-10	5	53.69
0-1.5, 1.5-2.5, 2.5-3.5, 3.5-4.5, 4.5-7, 7-10 (maximal model)	6	53.54
0-1.5, 1.5-3.5, 3.5-4.5, 4.5-7, 7-10	5	51.62
0-1.5, 1.5-2.5, 2.5-3.5, 3.5-4.5, 4.5-10	**5**	**51.54**

Table S8. Sheep nested models and AIC values for models combining five age groups

Model Age Intervals	**Number of Intervals**	**AIC Values**
1-1.5, 1.5-2, 2-3, 3-5, 5-8 (maximal model)	5	37.25
1-5, 5-8	2	36.41
1-1.5, 1.5-2, 2-5, 5-8	4	35.5
1-1.5, 1.5-2, 2-3, 3-8	4	35.47
1-2, 2-3, 3-5, 5-8	4	35.43

1-1.5, 1.5-3, 3-5, 5-8	4	35.28
1-8 (constant model)	1	34.63
1-3, 3-5, 5-8	3	34.62
1-1.5, 1.5-2, 2-8	3	34.17
1-1.5, 1.5-5, 5-8	3	33.49
1-1.5, 1.5-8	**2**	**32.74**

Table S9. Goat nested models and AIC values for models combining five age groups

Model Age Intervals	**Number of Intervals**	**AIC Values**
1-1.5, 1.5-8	2	40.1
1-1.5, 1.5-2, 2-8	3	40.01
1-8 (constant model)	1	39.66
1-1.5, 1.5-2, 2-3, 3-5, 5-8 (maximal model)	5	38.57
1-5, 5-8	2	37.24
1-1.5, 1.5-2, 2-3, 3-8	4	37.23
1-1.5, 1.5-2, 2-5, 5-8	4	37.16
1-1.5, 1.5-3, 3-5, 5-8	4	36.63
1-2, 2-3, 3-5, 5-8	4	36.59
1-3, 3-5, 5-8	3	36.48
1-1.5, 1.5-5, 5-8	**3**	**34.79**

Table S10. Cattle nested models and AIC values for models combining five age groups

Model Age Intervals	**Number of Intervals**	**AIC Values**
1.5-2.5, 2.5-10	2	52.52
1.5-10 (constant model)	1	50.52
1.5-4.5, 4.5-7, 7-10	3	48.42

1.5-2.5, 2.5-3.5, 3.5-7, 7-10	4	46.33
1.5-2.5, 2.5-7, 7-10	3	45.39
1.5-7, 7-10	2	44.48
1.5-2.5, 2.5-3.5, 3.5-10	3	44.31
1.5-2.5, 2.5-3.5, 3.5-4.5, 4.5-7, 7-10 (maximal model)	5	41.5
1.5-2.5, 2.5-4.5, 4.5-7, 7-10	4	40.17
1.5-3.5, 3.5-4.5, 4.5-7, 7-10	4	39.63
1.5-2.5, 2.5-3.5, 3.5-4.5, 4.5-10	**4**	**39.5**

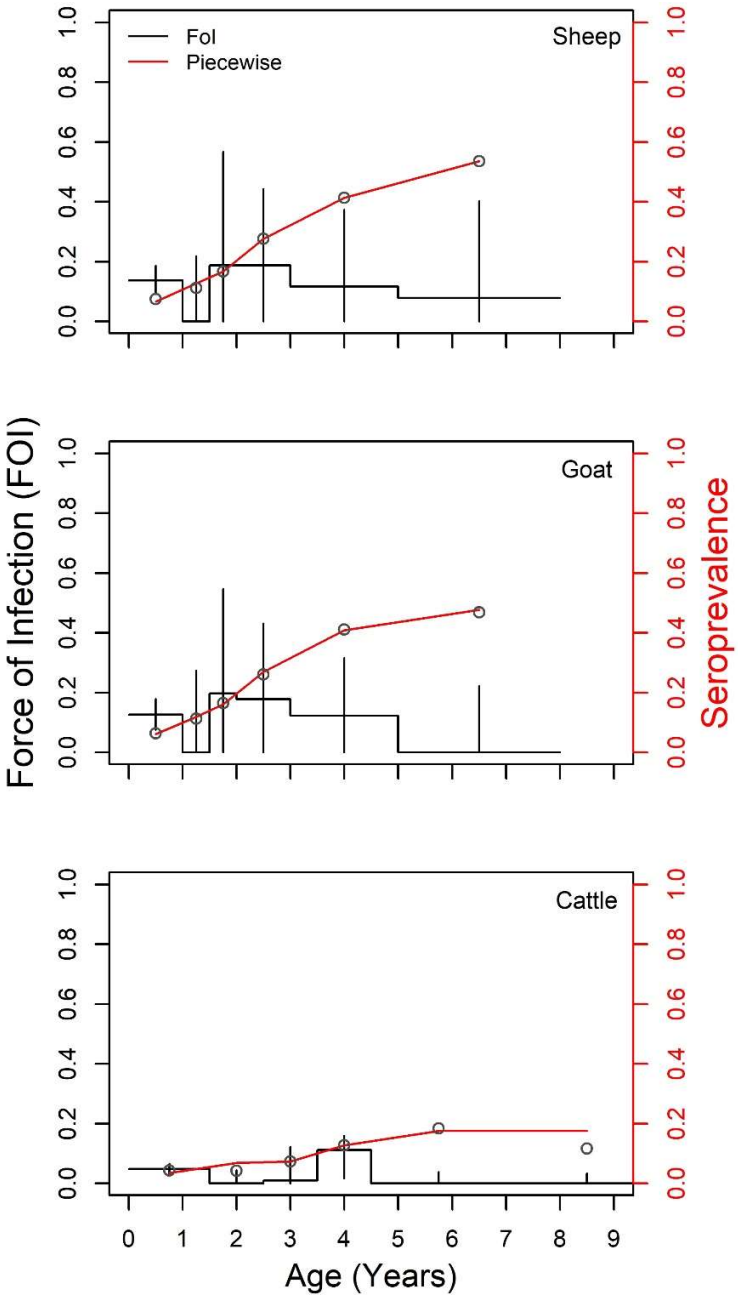

Figure S1. Age-specific force of infection estimates from a piece-wise catalytic model with six age groups and age-seroprevalence curves by species. The model fit is plotted as a line, age group seroprevalence estimates as points, and the age-specific FOI estimates as a step function.

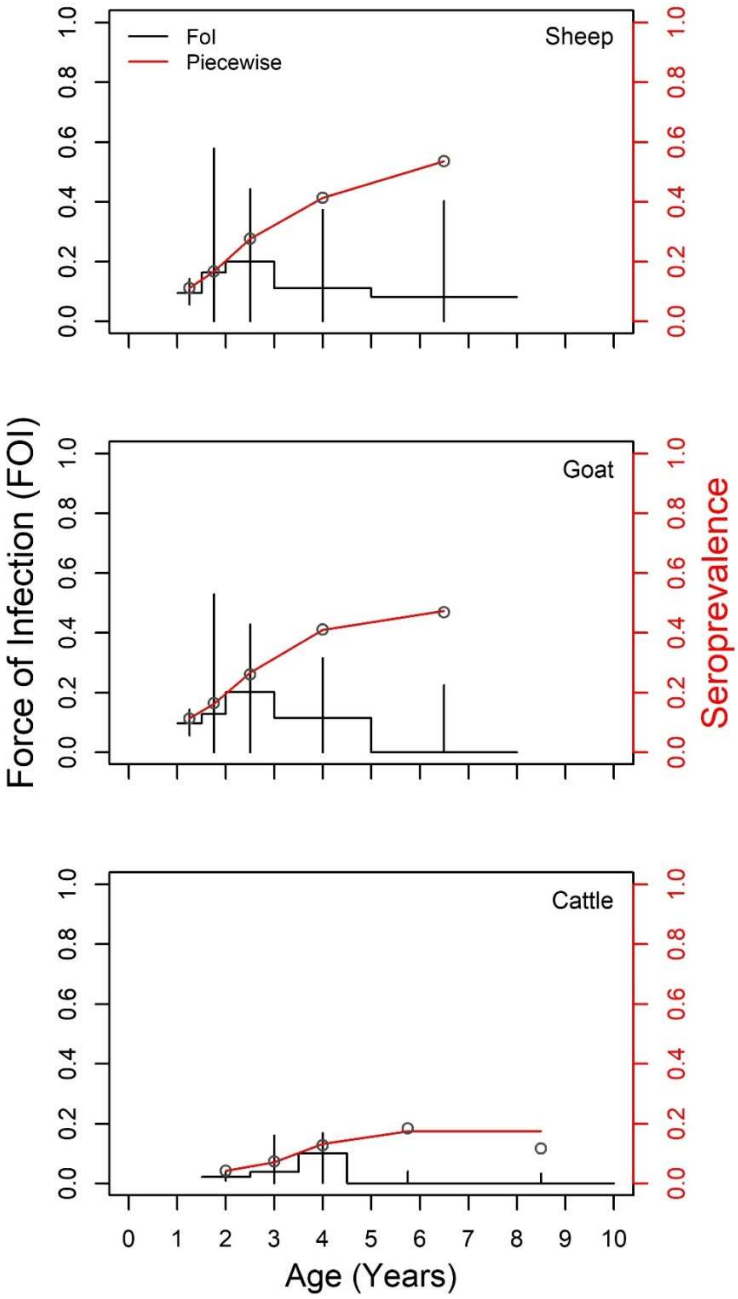

Figure S2. Age-specific force of infection estimates from a piece-wise catalytic model with five age groups and age-seroprevalence curves by species. The model fit is plotted as a line, age group seroprevalence estimates as points, and the age-specific FOI estimates as a step function.

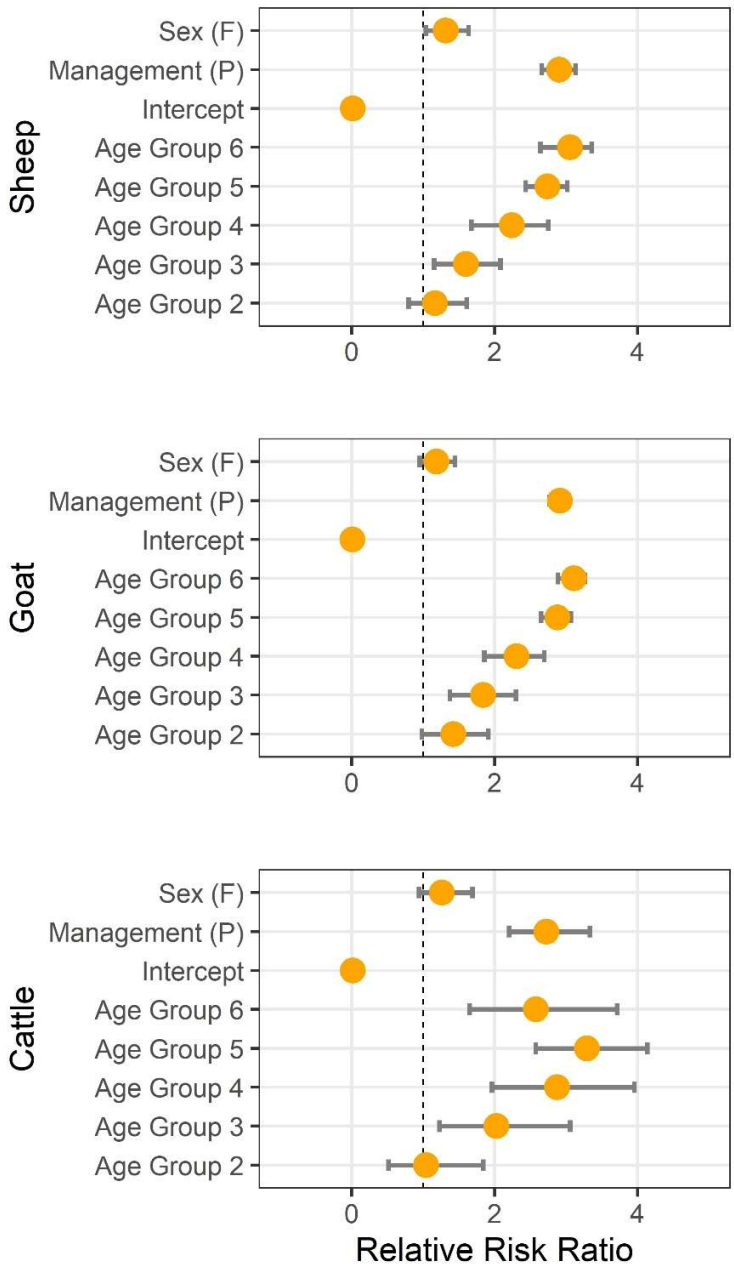

Figure S3. Logistic regression estimates of the impact of age, management, and sex on PPRV seroconversion. Reference group: male agropastoral cattle in age group 1. Management has a greater risk ratio and greater impact than all but the oldest age group(s).

Supplemental Text. Additional References that Tested the Significance of Age for PPRV Seroprevalence

Significant Age

The significance of age is supported by twenty-one studies that investigated two [3–8], three [9,10,19,20,11–18], four (Dejene 2016, unpublished master thesis) [21,22], or five [23] age groups and also found PPRV seroprevalence to increase with age. Four studies reported a significant effect of age, but did not find that PPRV seroprevalence increased with age [8,24–26] as would be expected with a fully immunizing infection.

Non-significant Age

The thirteen studies that found no significant effect of age had an unknown amount of age groups [27], two age groups [28–37], or three age groups [38,39].

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