

Appendix 3 Numerical Stability of Simulation Output

The tables in this appendix report the central estimate and the 95% confidence interval (2.5th percentile and 97.5th percentile) for each output summary statistic (mean, and percentiles: 5th, 25th, 50th, 75th, and 95th). The two summary statistics analyzed here are 1) the number of additional infected cattle (*i.e.*, cattle infected after the initial introduction into the U.S. of 500 infected cattle) and 2) the amount of BSE infectivity (quantified as cattle oral ID₅₀s) in food potentially available for human consumption. The confidence intervals were computed for each set of 50,000 simulation trials using SAS procedure UNIVARIATE, option ciquantdf (SAS version 9.1 for Windows, Cary NC).

Simulation Confidence Intervals for 50,000 Runs:
Range for Number of Additional Infected Cattle: 0.025 to 0.975

Scenario		Statistic	Mean	5th	25th	50th	75th	95 th
1	Base Case 500	Lower	178	33	97	154	241	396
		Central	179	33	98	156	243	400
		Upper	180	34	99	158	246	403
.								
2.1.1	FDA 1	Lower	178	33	97	154	241	393
		Central	179	33	98	156	244	396
		Upper	180	34	99	158	246	400
.								
2.1.2	FDA 2	Lower	178	33	96	155	242	396
		Central	179	33	97	157	244	400
		Upper	180	34	98	159	246	404
.								
2.2.1	IntComm 1	Lower	34.9	19	25	30	38	71
		Central	35	19	25	30	38	71
		Upper	35.2	19	25	30	38	72
.								
2.2.2	IntComm 2	Lower	172	32	90	146	232	385
		Central	173	32	92	148	234	388
		Upper	174	32	93	149	237	392
.								
2.3.1	USDA A	Lower	178	33	96	154	243	397
		Central	179	33	98	156	245	400
		Upper	180	33	99	157	247	403
.								
2.3.2	USDA B	Lower	177	33	95	153	240	391
		Central	178	33	97	155	242	395
		Upper	179	34	98	156	244	399
.								
2.3.3	USDA C	Lower	177	33	96	153	240	394
		Central	178	33	97	155	242	397
		Upper	179	34	98	156	244	400
.								
2.3.4	USDA A and B	Lower	178	33	96	154	241	396
		Central	179	33	97	155	243	400
		Upper	180	34	98	157	245	404
.								
2.3.5	USDA A and C	Lower	177	33	95	154	240	397
		Central	178	33	96	155	242	401
		Upper	179	34	98	157	244	404
.								
2.3.6	USDA B and C	Lower	178	33	97	154	241	395
		Central	179	33	98	156	243	399
		Upper	180	34	99	157	245	403
.								
3.1	Sensitivity 1	Lower	201	38	111	181	272	436
		Central	202	38	112	183	274	440
		Upper	203	39	113	184	276	443
.								
3.2	Sensitivity 2	Lower	2,600	1,150	1,880	2,500	3,210	4,380
		Central	2,610	1,160	1,890	2,510	3,230	4,410
		Upper	2,620	1,170	1,900	2,520	3,240	4,440
.								
3.3	Sensitivity 3	Lower	241	37	124	211	327	520
		Central	242	38	125	213	329	525
		Upper	244	39	125	215	332	529

Simulation Confidence Intervals for 50,000 Runs:
Range for Number of Additional Infected Cattle: 0.025 to 0.975

Scenario	Statistic	Mean	5th	25th	50th	75th	95 th
3.4 Sensitivity 4	Lower	178	32	96	154	241	396
	Central	179	33	97	155	243	399
	Upper	180	33	98	157	245	403
3.5 Sensitivity 5	Lower	188	35	103	168	257	414
	Central	189	36	104	169	258	418
	Upper	190	36	105	171	260	421
3.6 Sensitivity 6	Lower	42.5	6	13	24	59	126
	Central	42.8	6	13	24	60	127
	Upper	43.2	7	13	24	61	129
3.7 Sensitivity 7	Lower	177	32	96	153	240	394
	Central	178	33	97	155	242	398
	Upper	179	33	98	156	244	402
3.8 Sensitivity 8	Lower	177	33	96	154	240	394
	Central	178	33	97	156	242	397
	Upper	179	33	98	157	244	401

Simulation Confidence Intervals for 50,000 Runs:
Range for Cattle Oral ID_{50S} Potentially Available to Humans: 0.025 to 0.975

Scenario		Statistic	Mean	5th	25th	50th	75th	95th
1	Base Case 500	Lower	3,760	1,580	2,390	3,180	4,410	8,580
		Central	3,780	1,590	2,400	3,190	4,440	8,660
		Upper	3,800	1,610	2,410	3,210	4,470	8,770
.								
2.1.1	FDA 01	Lower	3,750	1,580	2,380	3,180	4,400	8,500
		Central	3,770	1,590	2,390	3,190	4,430	8,610
		Upper	3,790	1,600	2,400	3,210	4,460	8,730
.								
2.1.2	FDA 02	Lower	3,760	1,580	2,390	3,190	4,410	8,560
		Central	3,780	1,590	2,400	3,200	4,440	8,680
		Upper	3,800	1,600	2,410	3,220	4,470	8,760
.								
2.2.1	IntComm 01	Lower	9.71	2.68	5.67	8.44	12.1	21.3
		Central	9.76	2.73	5.72	8.49	12.2	21.7
		Upper	9.81	2.76	5.76	8.55	12.3	22
.								
2.2.2	IntComm 02	Lower	3,740	1,580	2,370	3,160	4,380	8,500
		Central	3,750	1,590	2,380	3,180	4,410	8,600
		Upper	3,770	1,600	2,390	3,190	4,440	8,710
.								
2.3.1	USDA A	Lower	3,710	1,560	2,350	3,130	4,360	8,430
		Central	3,730	1,580	2,370	3,150	4,390	8,540
		Upper	3,750	1,590	2,380	3,170	4,420	8,650
.								
2.3.2	USDA B	Lower	10.4	2.69	5.73	8.55	12.1	19.8
		Central	10.6	2.73	5.78	8.59	12.2	20
		Upper	10.8	2.78	5.82	8.65	12.3	20.2
.								
2.3.3	USDA C	Lower	2,170	442	955	1,560	2,570	6,930
		Central	2,180	449	963	1,570	2,600	7,030
		Upper	2,200	456	969	1,580	2,630	7,120
.								
2.3.4	USDA A and B	Lower	9.83	2.66	5.63	8.4	11.9	19.4
		Central	10	2.71	5.68	8.45	11.9	19.6
		Upper	10.2	2.75	5.72	8.5	12	19.8
.								
2.3.5	USDA A and C	Lower	2,150	444	944	1,550	2,530	6,950
		Central	2,170	453	953	1,560	2,550	7,060
		Upper	2,180	461	961	1,570	2,580	7,140
.								
2.3.6	USDA B and C	Lower	9.77	2.68	5.7	8.48	12	19.2
		Central	10.1	2.72	5.75	8.53	12	19.3
		Upper	10.4	2.76	5.79	8.57	12.1	19.5
.								
3.1	Sensitivity 1	Lower	3,820	1,620	2,430	3,240	4,490	8,630
		Central	3,840	1,630	2,440	3,250	4,510	8,750
		Upper	3,860	1,640	2,460	3,270	4,540	8,850
.								
3.2	Sensitivity 2	Lower	8,990	4,210	6,300	8,260	10,900	16,200
		Central	9,030	4,240	6,330	8,300	11,000	16,300
		Upper	9,060	4,270	6,360	8,340	11,000	16,400
.								
3.3	Sensitivity 3	Lower	3,930	1,680	2,520	3,360	4,640	8,730
		Central	3,950	1,690	2,530	3,370	4,670	8,830
		Upper	3,970	1,700	2,540	3,390	4,700	8,920

Simulation Confidence Intervals for 50,000 Runs:
 Range for Cattle Oral ID_{50S} Potentially Available to Humans: 0.025 to 0.975

Scenario	Statistic	Mean	5th	25th	50th	75th	95th
3.4 Sensitivity 4	Lower	4,440	1,980	2,960	3,880	5,230	9,290
	Central	4,460	2,000	2,970	3,890	5,260	9,390
	Upper	4,480	2,020	2,990	3,910	5,290	9,500
3.5 Sensitivity 5	Lower	6,540	2,980	4,330	5,680	7,810	12,800
	Central	6,570	3,010	4,350	5,710	7,860	12,900
	Upper	6,600	3,030	4,370	5,740	7,910	13,000
3.6 Sensitivity 6	Lower	1,890	639	1,110	1,550	2,170	4,320
	Central	1,900	646	1,120	1,550	2,180	4,380
	Upper	1,910	655	1,120	1,560	2,200	4,440
3.7 Sensitivity 7	Lower	3,760	1,590	2,390	3,180	4,390	8,560
	Central	3,780	1,600	2,400	3,190	4,420	8,660
	Upper	3,800	1,620	2,410	3,200	4,440	8,750
3.8 Sensitivity 8	Lower	3,790	1,600	2,400	3,200	4,430	8,670
	Central	3,810	1,610	2,410	3,220	4,460	8,770
	Upper	3,830	1,620	2,430	3,230	4,480	8,870