

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
1.1 Base Case 500	Lower	202	37	109	181	274	450
	Central	203	38	110	182	275	453
	Upper	204	38	111	184	277	457
2.1.1 USDA A	Lower	202	38	109	183	275	445
	Central	204	38	110	184	277	448
	Upper	205	39	111	185	278	452
2.1.2a USDA B (12 mo, 100% compliance)	Lower	202	38	109	182	276	449
	Central	204	38	110	183	277	453
	Upper	205	39	111	185	279	457
2.1.2b USDA B (24 mo, 100% compliance)	Lower	204	38	111	184	277	447
	Central	205	38	112	185	279	450
	Upper	206	39	112	186	280	454
2.1.2c USDA B (30 mo, 100% compliance)	Lower	202	37	109	181	275	448
	Central	203	38	110	182	276	452
	Upper	204	39	111	184	278	456
2.1.2d USDA B (30 mo, 90% compliance)	Lower	203	38	110	183	274	448
	Central	204	38	110	184	276	451
	Upper	205	39	111	185	278	454
2.1.2e USDA B (12 mo, 95% compliance)	Lower	204	38	111	184	278	449
	Central	205	38	111	185	279	453
	Upper	207	39	112	187	281	457
2.1.2f USDA B (12 mo, 99% compliance)	Lower	203	37	110	183	276	447
	Central	204	38	111	185	278	451
	Upper	206	39	112	186	279	454
2.1.4 USDA A+B (30 mo, 100% compliance)	Lower	203	38	110	182	276	446
	Central	204	38	111	184	277	450
	Upper	205	39	112	185	279	454
3.1.1 Sens 01 – Mislabeling + contam.	Lower	219	42	119	196	294	475
	Central	220	42	120	198	296	479
	Upper	221	43	120	199	298	483
3.1.2 Sens 02 – Misfeeding	Lower	2,050	774	1,380	1,940	2,580	3,680
	Central	2,050	786	1,390	1,950	2,590	3,710
	Upper	2,060	795	1,400	1,960	2,610	3,730
3.1.5 Sens 05 – AM Inspection	Lower	213	40	115	191	287	467
	Central	214	40	116	192	288	471
	Upper	215	41	117	194	290	475
3.1.6 Sens 06 – Incubation period	Lower	51	7	14	27	73	165
	Central	51.5	7	15	27	75	167
	Upper	52	7	15	28	76	169
3.1.9 Sens 09 – Poultry litter recycling	Lower	416	112	244	377	545	841

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	95th
	Central	418	115	247	380	549	847
	Upper	420	117	249	382	552	853

Simulation Confidence Intervals for 50,000 Runs:
Range for Cattle Oral ID₅₀s Potentially Available to Humans: 0.025 to 0.975

Scenario	Statistic	Mean	5th	25th	50th	75th	95 th
1.1 Base Case 500	Lower	6,550	2,980	4,310	5,680	7,820	13,000
	Central	6,580	3,010	4,340	5,700	7,870	13,100
	Upper	6,610	3,030	4,350	5,730	7,920	13,200
2.1.1 USDA A	Lower	6,350	2,880	4,170	5,480	7,550	12,700
	Central	6,380	2,900	4,190	5,510	7,610	12,800
	Upper	6,410	2,920	4,210	5,530	7,660	12,900
2.1.2a USDA B (12 mo, 100% compliance)	Lower	16.7	6.16	11.3	15.7	20.9	30.7
	Central	16.8	6.26	11.3	15.7	21	30.9
	Upper	16.8	6.35	11.4	15.8	21.1	31.1
2.1.2b USDA B (24 mo, 100% compliance)	Lower	16.8	6.26	11.3	15.7	21	30.8
	Central	16.9	6.35	11.4	15.8	21.1	31
	Upper	17	6.44	11.5	15.9	21.2	31.2
2.1.2c USDA B (30 mo, 100% compliance)	Lower	19.4	6.38	11.5	16	21.5	33.4
	Central	19.9	6.48	11.6	16	21.6	33.7
	Upper	20.4	6.55	11.6	16.1	21.8	34
2.1.2d USDA B (30 mo, 90% compliance)	Lower	663	47.9	235	424	718	1,860
	Central	671	49.3	238	427	726	1,890
	Upper	680	51.1	240	431	734	1,930
2.1.2e USDA B (12 mo, 95% compliance)	Lower	345	16	56.5	213	357	1,110
	Central	351	16.2	58.1	214	362	1,120
	Upper	357	16.4	59.6	216	366	1,130
2.1.2f USDA B (12 mo, 99% compliance)	Lower	80.5	7.61	14.2	21.6	48.7	267
	Central	83	7.71	14.3	21.7	50.7	270
	Upper	85.5	7.79	14.4	21.9	52.9	272
2.1.4 USDA A+B (30 mo, 100% compliance)	Lower	19.2	5.98	10.9	15.4	20.9	32.5
	Central	19.6	6.07	11	15.4	21	32.8
	Upper	20.1	6.14	11.1	15.5	21.1	33.2
3.1.1 Sens 01 – Mislabeling + contam.	Lower	6,650	3,020	4,380	5,770	7,980	13,100
	Central	6,680	3,040	4,400	5,800	8,030	13,200
	Upper	6,710	3,070	4,420	5,820	8,090	13,300
3.1.2 Sens 02 – Misfeeding	Lower	12,900	5,980	8,970	11,900	15,800	22,700
	Central	12,900	6,030	9,010	12,000	15,900	22,900
	Upper	13,000	6,080	9,050	12,000	16,000	23,000
3.1.5 Sens 05 – AM Inspection	Lower	9,620	4,740	6,630	8,590	11,900	17,400
	Central	9,660	4,770	6,670	8,630	11,900	17,500
	Upper	9,690	4,800	6,690	8,670	12,000	17,600
3.1.6 Sens 06 – Incubation period	Lower	2,560	880	1,480	2,070	2,940	6,130
	Central	2,580	890	1,490	2,080	2,960	6,300
	Upper	2,590	901	1,500	2,090	2,980	6,520

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	95 th
3.1.9 Sens 09 – Poultry litter recycling	Lower	7,430	3,440	4,980	6,520	8,960	14,200
	Central	7,460	3,460	5,000	6,560	9,030	14,300
	Upper	7,490	3,490	5,020	6,580	9,090	14,400