

1 Introduction

This appendix lists model structure changes made to simulation model and the parameter value changes for the base case, the alternative scenarios and the sensitivity analyses.

2 Basecase 2003

2.1 Assign ambulatory status

See Section 2.2.1 of the main report

2.2 New AMInspector

<AMInspector>

<probOK_OtherFactors>

AmbStatus	Age	ProbTestOk
NORMAL	0	0.990173
	12	0.99993
	24	0.997244
NONAMB	0	0.6

<probTestClinical>

InfectStatus	AmbStatus	ProbTestClinical
NOSIGNS	NORMAL	0
	NONAMB	0
CLINICAL	NORMAL	0.95
	NONAMB	0.85

<okForFood>

OtherFactorsOK	TestClinical	AmbStatus	OKForFood
TESTOK	TESTNOTCLINICAL	NORMAL	TRUE
		NONAMB	TRUE
	TESTCLINICAL	NORMAL	FALSE
		NONAMB	FALSE
TESTNOTOK	TESTNOTCLINICAL	NORMAL	FALSE
		NONAMB	FALSE
	TESTCLINICAL	NORMAL	FALSE
		NONAMB	FALSE

<okForFeed>	TestClinical	AmbStatus	OKForFeed
OtherFactorsOK	TESTNOTCLINICAL	NORMAL	TRUE
TESTOK	TESTCLINICAL	NONAMB	TRUE
		NORMAL	FALSE
		NONAMB	FALSE
TESTNOTOK	TESTNOTCLINICAL	NORMAL	TRUE
	TESTCLINICAL	NONAMB	TRUE
		NORMAL	FALSE
		NONAMB	FALSE

2.3 Feed Rule Compliance Rates

- feed Producer
 - <ProbContam> = 0.019
 - <ProbMisLabel> = 0.04
- renderer
 - <probContamination> = 0.018
 - <proMisLabel> = 0.023

2.4 Infectivity to Bone-in-Beef from animals > 24 months from SC and DRG

For animals 12 months and older:

- Splitter
 - <fracSCInBone> = 0.3 when spinal cord is not removed (last character in Combo field is “N”), and zero otherwise.

For animals 12 months and older:

- Splitter
 - <fracDRGInBone> = 0.3 for all mis-split, AMR, spinal cord combinations.

2.5 Tonsil Infectivity

Relative Infectivity of Specific Tissues Specified From an Infected Bovine (Based on (European Union Scientific Steering Committee 1999a))^a Adjusted to Include Tonsil

Tissue	Fraction of Total Infectivity
Brain	No infectivity in cattle < 32 months post-inoculation (PI) 32 months PI and over: 64.3%
Trigeminal Ganglia	No infectivity in cattle < 32 months post-inoculation. 32 months PI and over: 2.6%
Other Head (eyes)	No infectivity in cattle < 32 months post-inoculation. 32 months PI and over: 0.04%
Distal Ileum	6-18 months post inoculation: 100% 18-31: No Infectivity 32 months PI and over 3.3%
Spinal Cord	No infectivity in cattle < 32 months post-inoculation. 32 months PI and over: 25.5% infectivity
Dorsal Root Ganglia	No infectivity in cattle < 32 months post-inoculation. 32 months PI and over: 4.0 % infectivity
Tonsil	Infectivity >0 months post-inoculation 0 Months PI and over: 0.2% infectivity

3 USDA Scenarios

3.1 USDA A

- AMInspector

<okForFood>

OtherFactorsOK	TestClinical	AmbStatusOKForFood		
2				
TESTOK	2			
	TESTNOTCLINICAL	2	NORMAL	TRUE
			NONAMB	FALSE
	TESTCLINICAL	2	NORMAL	FALSE
			NONAMB	FALSE
TESTNOTOK	2			
	TESTNOTCLINICAL	2	NORMAL	FALSE

TESTCLINICAL 2

NONAMB FALSE

NORMAL FALSE

NONAMB FALSE

</okForFood>

3.2 USDA B

- FoodInspector
 - set gut and tonsil to 0 for all age categories
 - for over 30 months set brain, eyes, TG, spinal cord, DRG to 0

3.3 USDA C

For animals 30 months of age and older

- Splitter
 - <probMS_AMR_SCRemove> = 0 for all AMR categories (second character in Combo field is “Y”)
 - <probMS_AMR_SCRemove> = 0.19504 for all no AMR, no mis-split, and no spinal cord removal (“NNN” category);
 - <probMS_AMR_SCRemove> = 0.72496 for all no AMR, no mis-split, and spinal cord removal (“NNY” category);
 - <probMS_AMR_SCRemove> = 0.01696 for all no AMR, mis-split, and no spinal cord removal (“YNN” category);
 - <probMS_AMR_SCRemove> = 0.06304 for all no AMR, mis-split, and spinal cord removal (“YNY” category);

These values were calculated by adding the original NYN value of 0.01104 to the original NNN value of 0.184 to get 0.19404, and adding the original NYY value of 0.54096 to the original NNY value of 0.184 to get 0.72496. Similarly, we added the YNN value to the YYN category, and the YNY value to the YYY category.

For all ages - to deal with AMR meat failed for CNS tissue used and Mechanically Separated Beef

- Splitter
 - <fracSCInAMRMeat> = 0
 - <fracDRGInAMRMeat> = 0

4 FDA Scenarios

4.1 FDA 1

- MBMTransporter
 - <probDestination>
 - Producer Type “Any”
 - Material “Blood”
 - Blood Meal Producer = 0

4.2 FDA 2

- feed Producer
 - <ProbContam> = 0

- renderer
 - $\langle \text{probContamination} \rangle = 0$

5 International Review Subcommittee Scenarios

5.1 Int Comm 1

- SRM Inspector – animals over 12 months and older
 - $\langle \text{probPassSRM} \rangle = 0.00$ for brain, eyes, TG, SC, DRG, tonsils, gut

5.3 Int Comm 2

- renderer

$\langle \text{probType} \rangle$		
Type		Prob
3		
P_MBM_PRODUCER		1.0
NP_MBM_PRODUCER		0.0
MIXED_MBM_PRODUCER		0.0
$\langle \text{probType} \rangle$		
$\langle \text{probMisLabel} \rangle$		
Type		Prob
3		
P_MBM_PRODUCER		0.0
NP_MBM_PRODUCER		0.0
MIXED_MBM_PRODUCER		0.0
$\langle \text{probMisLabel} \rangle$		

6 Sensitivity Analyses

6.1 Sensitivity 1

- feed Producer
 - $\langle \text{ProbContam} \rangle = 0.16$
 - $\langle \text{ProbMisLabel} \rangle = 0.05$
- renderer
 - $\langle \text{probContamination} \rangle = 0.14$
 - $\langle \text{proMisLabel} \rangle = 0.05$

6.2 Sensitivity 2

- feeder
 - $\langle \text{probFeedOK} \rangle = 0.85$

6.3 Sensitivity 3

- renderer,
 - $\langle \text{renderFactor} \rangle$ is revised so that it contains the worst case values that appear in the following table:

Technology	Infectivity Inactivation Achieved (log base 10)	Proportion of cattle rendered	
		Base Case	Worst Case
Batch	3.1 logs	5%	5%
Continuous/fat added	2 logs	45%	20%
Continuous/ no fat added	1 log	45%	70%
Vacuum	0 logs	5%	5%

6.4 Sensitivity 4

- food Inspector
 - <probPassFood> Bone
 - 0-23 months = 1.00
 - 24-29 months = 0.90
 - over 30 months = 0.45

6.5 Sensitivity 5

- AMInspector
 - <ProbTestClinical>
 - Normal = 0.5
 - NonAmb = 0.25

6.6 Sensitivity 6

- Sickbovine
 - <clinicalDate> - All percentile values have been doubled. Hence, the median occurs at approximately 100 months, rather than at 50 months.

6.7 Sensitivity 7

- Sickbovine

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<probNonAmbulatory>
  ClinicalStatus      Prob
  2
  NOSIGNS             0.0
  CLINICAL            0.0787
</probNonAmbulatory>

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6.8 Sensitivity 8

- Sickbovine

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<probNonAmbulatory>
  ClinicalStatus      Prob
  2
  NOSIGNS             0.005
  CLINICAL            1
</probNonAmbulatory>

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