United States Department of Agriculture

Pathogen Controls in Beef Operations Summary Results

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Introduction

In September 2011, the Food Safety and Inspection Service (FSIS) announced in a Federal Register notice, Shiga Toxin-Producing *Escherichia coli* in Certain Raw Beef Products, its intent to conduct a comprehensive survey of its field personnel who are stationed in beef slaughtering and processing establishments. Before launching the survey, FSIS sought public comment on the questions it planned to use to survey its field personnel. On February 8, 2013, FSIS posted a draft survey to the Federal eRulemaking Portal online for a 30-day comment period. FSIS extended the comment period to March 25, 2013, in response to a request from three industry groups. The survey was launched to personnel in a step-wise fashion starting May 6, 2013, and closed July 25, 2013.

FSIS received five comment letters, and made several changes to the survey in response to those comments.[1] FSIS provided a purpose statement in response to a comment requesting an explanation of how the information from the survey will be used, and is publishing this summary report in response to a request for the results to be shared with stakeholders. FSIS also received comments requesting that FSIS clarify certain questions and answer choices, that the survey be renamed to better describe the topics that were covered, and that certain questions relating to annual costs be eliminated. FSIS made changes to the survey based on these suggestions. One comment suggested that certain survey answers would lead to establishments receiving regulatory noncompliance records. In response, FSIS added language to the survey instructions to clarify that the survey is not designed to determine noncompliance.

FSIS conducted the Pathogen Controls in Beef Operations survey to gather information on the controls beef slaughtering and processing establishments have in place to reduce Shiga toxin-producing *Escherichia coli* (STEC) and *Salmonella* contamination. This survey was designed to gather information currently not collected in the Public Health Information System. FSIS will use the survey results to update the economic analysis to support the full implementation of its non-O157 STEC policy. FSIS also will analyze survey results to determine targeted approaches for its risk-based verification testing program and to assist in prioritizing the scheduling of Food Safety Assessments (FSA) by Enforcement, Investigations, and Analysis Officers (EIAO). FSIS did not use the survey results as a basis for issuing noncompliance records (NRs) or enforcement actions.

Data

Population

The initial data set included 482 respondents to the survey. After reviewing the individual responses, 2 establishments were deleted from the population for two reasons. First, the data fields were empty. Second, the timestamps on the survey showed that they were opened and closed within a short period of time indicating that the respondent did not intend to answer the questions.

Skip Patterns

[1] A detailed summary of comments and responses can be found on the FSIS website: http://www.fsis.usda.gov/wps/wcm/connect/6d37a1fc-a3e1-40b6-90cc-719bdb391522/STEC_Survey_Comments_Summary.pdf?MOD=AJPERES

The survey as shared with the public employed a series of skip patterns which were not operationally employed in the instrument released to the Inspection Program Personnel (IPP). For the purposes of this analysis, OPPD instituted the skip patterns as planned. A review of the data that was skipped suggests that IPP, although given the opportunity to answer the questions, were choosing responses indicating that the data was not applicable to the establishment.

Skip Patterns

Question	Response	Skip To
Slau1	No	FABINT1
PHMC1	No	SD1
SD1	No	SD5
HOINT1	No	PrEINT1
HOINT4	Yes	HOINT5

Skip Patterns (continued)

PrEINT1	No	PoEINT1
PrEINT5	Yes	PrEINT6
PoEINT1	No	CST1
PoEINT3	Yes	PoEINT4
CST1	No	FabINT1
FabINT1	Yes, the establishment fabricates beef carcasses	FabINT3
FabINT1	No	MechTend1
FabINT3	Yes	FabCarcINT1
FabCarcINT1	No	FabPrimSubprimINT1
FabCarcINT5	No	FabPrimSubprimINT1
FabPrimSubprimINT1	No	MechTend1
FabPrimSubprimINT2	No	FabPrimSubprimINT5
FabPrimSubprimINT6	No	FabPrimSubprimST1
FabPrimSubprimST1	No	MechTend1
MechTend1	No	TrimINT1
MechTend4	No	MechTEend6
MechTend8	No	MechTendST1
MechTendST1	No	TrimINT1
TrimINT1	No	CMPINT1
TrimINT2	No	TrimLot1
TrimINT5	No	TrimLot1
TST1	No	CMPINT1
TST2	Surface wash	TST17
TST7	IEH Advanced Pathogen Testing and Carcass Certification Program	TST9
TrimST19	No	HEP1
TrimST22	No	HEP1

HEP1	No	CMPINT1
CMPINT1	No	RGBINT1
CMPINT2	No	CMPINT6
CMPINT6	No	CMPLot1
CMPST1	No	RGBINT1
CMPST20	No	CMPST22
RGBINT1	No	REA1
RGBINT2	No	RGBINT4
RGBINT4	No	RGBLot1
RGBST1	No	REA1
RGBST14	No	RGBST17
nSTEC1	No	CQ1

Establishment Weighting

Due to the time consuming nature of the questionnaire, FSIS employed a sampling plan in order to control the total amount of Agency time spent responding to the survey. FSIS stratified establishments by slaughter volume (head count), veal slaughter volume (head count), and for those that do not slaughter by HACCP processing size. Establishments that have a high rate of slaughter and establishments that fall into the HACCP-size Large category account for the majority of product entering commerce and therefore represent a higher risk for large-scale product contamination and foodborne illnesses. For this reason FSIS surveyed all of these high production establishments. For lower volume establishments, FSIS sent the survey to a random sample. This kept the burden on those establishments with a small number of employees to a minimum while still enabling FSIS to gather information about the practices of smaller establishments.

While a certain amount of non-response was expected, FSIS believed that most contacted establishments would respond. Therefore, FSIS did not over sample to account for an expected non-response, but instead decided to retroactively augment sample sizes if the non-response rates proved to be significant. This was the case in Stratum 1, where the sampling rate was increased from a planned 33% in order to cope with high non-response.

Establishment Weights

Stratum	**Description – Slaughter Head Count (if applicable)**	**Respondents (Sample)**	**Total Establishments (Population)**	**Planned Sampling Rate**	**Actual Sampling Rate**	**Weight**
1	≤ 6,000	203	545	33%	37%	2.7
2	6,001 - 400,000 (1 - 10,000 Veal)	15	16	100%	94%	1.1
3	6,001 - 400,000 (>10,000 Veal)	14	16	100%	88%	1.1
4	6,001 - 400,000 (0 Veal)	40	49	75%	82%	1.2
5	400,001 - 1,000,000 (0 Veal)	17	17	100%	100%	1.0
6	> 1,000,000 (0 Veal)	13	14	100%	93%	1.1
7	HACCP-size Large Non-slaughter	26	27	100%	96%	1.0
8	HACCP-size Small Non-slaughter	75	736	10%	10%	9.8
9	HACCP-size Very Small Non-slaughter	77	863	10%	9%	11.2

Weighted Frequency

FSIS applied the sample weights for each response to determine weighted frequency – an approximation of the total number of establishments in the population that would have returned this response if they were surveyed.

Weighted Frequency = Sum of Weights for Response

Weighted Percentage

FSIS used the sample weights for each response to determine weighted percentage – an approximation of the percentage of establishments in the population that would have returned this response if they were surveyed.

Weighted Percentage = Sum of Weights for Response / Sum of Weights for All Question Respondents[1]

[1]Question Respondents are determined using the skip patterns identified above.

Display of Data

The survey questionnaire contained many large matrix questions, see below for an example. Responses to large matrix questions were split into multiple tables so as to display all results in a clear and concise format. To reduce inaccurate interpretations of the results, readers should reference the questionnaire, available at: http://www.fsis.usda.gov/wps/wcm/connect/184a3baa-2f73-4651-8aba-68124580f4e0/Pathogen_Controls_in_Beef_Operations_Survey.pdf?MOD=AJPERES

PHMC3. Which pre-harvest management practices do the establishment's suppliers apply as part of its food safety system? (Select all that apply)

Pre-harvest management practices or controls	**Answer Options**				
	Cannot determine based on available records or my observations	Management practices applied throughout the year	Management practices added during High Prevalence Season only (i.e., April – Oct)	Varies by suppliers (i.e., different purchase specifications)	N/A
Cattle drinking water treatments	❑	❑	❑	❑	❑
Feed types/feed additives	❑	❑	❑	❑	❑
Feeding hay when finishing cattle	❑	❑	❑	❑	❑
Fasting	❑	❑	❑	❑	❑
Antibiotic Feed Additives	❑	❑	❑	❑	❑
Probiotics	❑	❑	❑	❑	❑
Colicin producing *E. coli* strains	❑	❑	❑	❑	❑
Clean and dry bedding	❑	❑	❑	❑	❑
Sanitation practices on farms and feedlots	❑	❑	❑	❑	❑
Housing calves away from other livestock	❑	❑	❑	❑	❑
Sanitation practices at transport	❑	❑	❑	❑	❑
Bacteriophages	❑	❑	❑	❑	❑
Cattle hide washing	❑	❑	❑	❑	❑
Vaccination	❑	❑	❑	❑	❑

PHMC3. Which pre-harvest management practices do the establishment's suppliers apply as part of its food safety system? (Select all that apply)

Cannot Determine based on available records or my observations			
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Cattle drinking water treatments	15	18	23.27%
Feed types/feed additives	15	18	23.56%
Feeding hay when finishing cattle	16	21	26.71%
Fasting	16	21	26.71%
Antibiotic Feed Additives	16	21	26.71%
Probiotics	16	21	26.71%
Colicin producing *E. coli* strains	16	19	24.84%
Clean and dry bedding	13	19	24.53%
Sanitation practices on farms and feedlots	19	26	33.17%
Housing calves away from other livestock	14	17	22.26%
Sanitation practices at transport	16	24	30.84%
Bacteriophages	10	13	16.57%
Cattle hide washing	8	10	13.44%
Vaccination	15	18	23.35%

Results

Slaughter

Slau1. Does the establishment slaughter cattle? For clarification, FSIS considers veal a cattle slaughter class.

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	297	654	28.63%
No	183	1629	71.37%
Total	480	2283	100.00%

Pre-harvest Management Controls

PHMC1. Does the establishment have a written program (HACCP plan, Sanitation SOPs or other prerequisite program) that addresses the use of pre-harvest management practices or controls to support its food safety system? For additional information on what is meant by pre-harvest management practices, refer to FSIS pre-harvest guidelines

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	47	78	11.95%
No	250	576	88.05%
Total	297	654	100.00%

PHMC2. In the last 12 months, approximately what percentage of purchased (live) cattle received pre-harvest management controls (e.g., 0%, 50%, 100%)?

Response	Frequency	Weighted Frequency	Weighted Percentage
1-10%	2	4	5.0%
11-20%	2	4	5.0%
21-30%	0	0	0.0%
31-40%	0	0	0.0%
41-50%	0	0	0.0%
51-60%	7	7	9.4%
61-70%	0	0	0.0%
71-80%	0	0	0.0%
81-90%	0	0	0.0%
91-100%	28	48	61.1%
Cannot determine based on available records or my observations	8	15	19.4%
Total	47	78	100%

PHMC3. Which pre-harvest management practices do the establishment's suppliers apply as part of its food safety system? (Select all that apply)

Cannot Determine based on available records or my observations			
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Cattle drinking water treatments	15	18	23.27%
Feed types/feed additives	15	18	23.56%
Feeding hay when finishing cattle	16	21	26.71%
Fasting	16	21	26.71%
Antibiotic Feed Additives	16	21	26.71%
Probiotics	16	21	26.71%
Colicin producing *E. coli* strains	16	19	24.84%
Clean and dry bedding	13	19	24.53%
Sanitation practices on farms and feedlots	19	26	33.17%
Housing calves away from other livestock	14	17	22.26%
Sanitation practices at transport	16	24	30.84%
Bacteriophages	10	13	16.57%
Cattle hide washing	8	10	13.44%
Vaccination	15	18	23.35%

Management practices applied throughout the year			
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Cattle drinking water treatments	1	1	1.57%
Feed types/feed additives	2	2	2.85%
Feeding hay when finishing cattle	2	2	3.14%
Fasting	4	9	11.88%
Antibiotic Feed Additives	1	1	1.57%
Probiotics	1	1	1.57%
Colicin producing *E. coli* strains	0	0	0.00%
Clean and dry bedding	14	27	34.27%
Sanitation practices on farms and feedlots	5	11	13.45%
Housing calves away from other livestock	2	4	4.82%
Sanitation practices at transport	9	15	19.22%
Bacteriophages	2	2	2.66%
Cattle hide washing	19	26	33.55%
Vaccination	2	4	4.82%

Management practices added during High Prevalence Season only (i.e. April – Oct)			
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Cattle drinking water treatments	0	0	0.00%
Feed types/feed additives	0	0	0.00%
Feeding hay when finishing cattle	0	0	0.00%
Fasting	0	0	0.00%
Antibiotic Feed Additives	0	0	0.00%
Probiotics	0	0	0.00%
Colicin producing *E. coli* strains	0	0	0.00%
Clean and dry bedding	0	0	0.00%
Sanitation practices on farms and feedlots	0	0	0.00%
Housing calves away from other livestock	0	0	0.00%
Sanitation practices at transport	0	0	0.00%
Bacteriophages	5	5	6.70%
Cattle hide washing	2	2	2.85%
Vaccination	0	0	0.00%

Varies by suppliers (i.e., different purchase specifications)			
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Cattle drinking water treatments	1	3	3.44%
Feed types/feed additives	1	3	3.44%
Feeding hay when finishing cattle	1	3	3.44%
Fasting	1	3	3.44%
Antibiotic Feed Additives	2	4	5.00%
Probiotics	2	4	5.00%
Colicin producing *E. coli* strains	0	0	0.00%
Clean and dry bedding	2	4	5.00%
Sanitation practices on farms and feedlots	1	3	3.44%
Housing calves away from other livestock	1	3	3.44%
Sanitation practices at transport	2	4	5.00%
Bacteriophages	2	4	5.00%
Cattle hide washing	1	1	1.38%
Vaccination	2	4	5.00%

N/A			
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Cattle drinking water treatments	30	56	71.73%
Feed types/feed additives	29	55	70.16%
Feeding hay when finishing cattle	28	52	66.72%
Fasting	26	45	57.98%
Antibiotic Feed Additives	28	52	66.72%
Probiotics	28	52	66.72%
Colicin producing *E. coli* strains	31	59	75.16%
Clean and dry bedding	18	28	36.20%
Sanitation practices on farms and feedlots	22	39	49.95%
Housing calves away from other livestock	30	54	69.49%
Sanitation practices at transport	20	35	44.94%
Bacteriophages	28	54	69.07%
Cattle hide washing	17	38	48.79%
Vaccination	28	52	66.83%

PHMC4. Does the establishment apply or require its suppliers to apply pre-harvest management practices that are not listed in the previous question?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes, specify	1	3	3.44%
Cattle hide washing	1	3	3.44%
No	46	75	96.56%
Total	47	78	100.00%

PHMC5. Has the establishment tested the hides of cattle it receives to identify the bacterial loads that its food safety system can reduce to an acceptable level. (Select all that apply)

	Hide-on testing conducted throughout the year			Hide-on testing conducted only during High Prevalence Season (i.e., April – Oct)		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
E. coli O157:H7	1	1	1.57%	1	1	1.38%
Non-O157 STEC	1	1	1.57%	1	1	1.38%
APC	4	4	5.51%	1	1	1.57%
Enterobacteriaciae	0	0	0.00%	1	1	1.57%
Coliforms	0		0.00%	1	1	1.57%

PHMC5 N/A			
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
E. coli O157:H7	45	76	97.05%
Non-O157 STEC	45	76	97.05%
APC	42	73	92.93%
Enterobacteriaciae	46	77	98.43%
Coliforms	46	77	98.43%

PHMC6. Does the establishment test hides of cattle it receives for organisms that are not listed in the previous question?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes, specify	1	1	1.28%
Virulence factors	1	1	1.28%
No	46	77	98.72%
Total	47	78	100.00%

Sanitary Dressing

SD1. Does the establishment have written sanitary dressing procedures?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	226	462	70.69%
No	71	192	29.31%
Total	297	654	100.00%

SD2. Does the written program contain any of the following procedures that the establishment will perform to prevent contamination from occurring at each step of the dressing process (e.g., live, receiving/holding sticking, and hide removal)? (Select all that apply)

Response	Frequency	Weighted Frequency	Weighted Percentage
The establishment trains its employees on their written sanitary dressing procedures	183	358	77.38%
The establishment monitors whether its employees are consistently performing the sanitary dressing procedures as written	188	369	79.89%
The establishment maintains records on their sanitary dressing procedures	161	311	67.22%
The establishment verifies that its sanitary dressing procedures are effective	154	293	63.42%
Other, specify (Responses not reported)	22	50	10.73%

SD3. Where does the establishment address written sanitary dressing and process control? Procedures in its food safety system (Select all that apply)

Response	Frequency	Weighted Frequency	Weighted Percentage
HACCP plan	64	130	28.08%
Sanitation SOP	128	268	57.97%
Other prerequisite program (e.g., standard operating procedure (SOP), good manufacturing practices (GMP)	148	276	59.66%

SD4. Which steps in the slaughter process does the written program address? (Select all that apply)

Response	Frequency	Weighted Frequency	Weighted Percentage
Live receiving/holding	126	240	51.92%
Sticking	183	359	77.59%
Hide removal	200	403	87.17%
Bunging	178	348	75.39%
Brisket opening	185	366	79.15%
Head removal	178	347	75.06%
Rodding the weasand (esophagus)	141	266	57.52%
Evisceration	205	413	89.38%
Carcass splitting	179	357	77.25%
Head and cheek meat processing	109	183	39.63%
Chilling	106	201	43.46%
None of the above	6	15	3.17%

SD5. Has the establishment identified process control criteria in its sanitary dressing procedures?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	149	299	45.68%
No	148	355	54.32%
Total	297	654	100.00%

SD6. How does the establishment verify that its sanitary dressing procedures are effective? (Select all that apply)

Response	Frequency	Weighted Frequency	Weighted Percentage
Conducting carcass audits (By carcass audits, we mean the establishment observing a set number of carcasses for visual carcass defects, e.g., fecal contamination, at points in the slaughter process where carcasses are vulnerable to contamination	175	364	55.74%
Relating carcass testing results to the effectiveness of its sanitary dressing/slaughter operation	159	331	50.58%
Relating trim testing results to the effectiveness of its sanitary dressing/slaughter operation	70	106	16.28%
Relating other raw ground beef component testing results to the effectiveness of its sanitary dressing/slaughter operation	51	71	10.85%
Relating ground beef testing results to the effectiveness of its sanitary dressing/slaughter operation	63	144	22.06%
Other, specify (Responses not reported)	40	75	11.55%
Establishment does not verify sanitary dressing procedures	47	116	17.70%

SD7. Using the establishment's process control criteria, has the establishment experienced a loss of process control in the last 12 months? (Select all that apply)

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes, according to the establishment's control process criteria	36	49	7.55%
Yes, according to FSIS inspection findings	34	51	7.74%
No	240	570	87.14%

SD8. Approximately how many establishment employees investigate to identify the cause of the loss of process control (specify number of employees, e.g.1, 2, 5)?

Response	Frequency	Weighted Frequency	Weighted Percentage
Cannot determine based on available records or my observations	153	362	55.46%
Number of establishment employees, specify	144	291	44.54%
1-5	125	269	41.10%
6-10	13	16	2.44%
>10	6	7	1.00%

SD9. Approximately how long does it take for the establishment to identify the cause of the loss of process control (specify the length of time in days, e.g. 1, 2, 7 days)?

Response	Frequency	Weighted Frequency	Weighted Percentage
Cannot determine based on available records or my observations	210	508	77.75%
Number of days, specify	87	145	22.25%
1	57	103	15.71%
2	19	28	4.22%
3	7	11	1.64%
4	1	1	0.19%
5	1	1	0.15%
7	1	1	0.16%
10	1	1	0.17%

SD10. Does the written sanitary dressing plan contain the following? (Select all that apply)

Response	Frequency	Weighted Frequency	Weighted Percentage
Microbiological sampling procedures	78	141	21.52%
Establishment process criteria	99	171	26.19%
None of the above	174	430	65.82%

SD11. Approximately how many employees perform sanitary dressing tasks (approximate number of employees as best you can, e.g., 1, 2, 25, 100, 200)? Please answer the questions based on your observation of establishment employees performing sanitary dressing on the slaughter floor.

Response	Frequency	Weighted Frequency	Weighted Percentage
0	4	11	1.64%
1-10	213	549	84.06%
11-20	19	25	3.85%
21-30	12	14	2.16%
31-40	5	6	0.89%
41-50	8	10	1.46%
51-60	4	4	0.67%
61-70	2	2	0.37%
71-80	2	2	0.37%
91-100	1	1	0.15%
101-110	3	3	0.51%
111-120	1	1	0.15%
121-130	3	3	0.48%
131-140	2	2	0.34%
141-150	6	6	0.96%
181-190	1	1	0.15%
191-200	2	2	0.33%
201-210	1	1	0.15%
221-230	1	1	0.16%
241-250	1	1	0.15%
251-260	2	2	0.32%
291-300	1	1	0.15%
401-410	1	1	0.16%
491-500	1	1	0.16%
721-730	1	1	0.16%

SD12. Of employees who perform sanitary dressing tasks, approximately how many employees are trained in performing the written sanitary dressing procedures tasks (e.g., 0, 1, 2, 10, 100, 200 – approximate the number of employees as best you can)?

Response	Frequency	Weighted Frequency	Weighted Percentage
Cannot determine based on available records or my observations	83	215	32.89%
Number of employees, specify	214	439	67.11%
0-5	113	291	44.49%
6-10	28	61	13.94%
11-20	17	22	3.08%
21-30	11	14	1.82%
31-80	19	22	2.76%
81-99	0	0	0.00%
100-199	18	19	2.23%
>=200	8	8	0.99%

Hide-on

HOINT1. Does the establishment apply any hide-on interventions to live cattle or pre-skinned carcasses?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	70	108	16.47%
No	227	546	83.53%
Total	297	108	16.47%

HOINT2. Which of the following hide-on interventions does the establishment apply? If the establishment implements any of the following hide-on interventions (prior to hide removal) when do they implement the intervention?

	Interventions applied throughout the year			Interventions applied during High Prevalence Season only (i.e., April – Oct.)		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Bacteriophages	3	5	4.49%	8	8	7.79%
Hot water Washing	7	14	13.24%	0	0	0.00%
Medium water washing	11	19	17.31%	2	2	1.86%
Cold water washing	31	49	45.78%	1	1	1.00%
Caustic soda	7	8	6.99%	1	1	1.00%
Chlorine	11	12	11.40%	1	1	0.93%
Lactic acid hide-on carcass wash	4	8	6.98%	0	0	0.00%
Acetic acid hide-on carcass wash	0		0.00%	0	0	0.00%
Peroxyacetic acid (PAA) hide-on carcass wash	2	2	1.92%	0	0	0.00%
Other antimicrobial hide-on carcass wash	4	4	3.92%	0	0	0.00%

	Varies by customer (i.e., different purchase specifications)			N/A		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Bacteriophages	58	93	86.59%	1	1	1.14%
Hot water Washing	0	0	0.00%	63	93	86.76%
Medium water washing	0	0	0.00%	57	87	80.83%
Cold water washing	0	0	0.00%	38	57	53.22%
Caustic soda	0	0	0.00%	62	99	92.01%
Chlorine	2	2	2.28%	56	92	85.39%
Lactic acid hide-on carcass wash	0	0	0.00%	66	100	93.02%
Acetic acid hide-on carcass wash	0	0	0.00%	70	108	100.00%
Peroxyacetic acid (PAA) hide-on carcass wash	0	0	0.00%	68	106	98.08%
Other antimicrobial hide-on carcass wash	0	0	0.00%	66	103	96.08%

HOINT3. Does the establishment apply hide-on interventions other than the ones mentioned in the previous question?

Response	Frequency	Weighted Frequency	Weighted Percentage
No	62	94	87.38%
Yes, specify	8	14	12.62%
bung vacuum, mud sawing on pattern line, mud scoring, squeegee pattern line, and bung washer	1	1	1.00%
Fly spray	1	3	2.49%
Hypobromous acid hand-held spray at shackling.	1	1	1.14%
mineral oil	1	3	2.49%
mud saw and mud scoring	1	1	0.93%
oil, during high prevalence season	1	3	2.49%
steam vac bung area	1	1	0.93%
steam vacuum, mud saw, water mist	1	1	1.14%

HOINT4. Are the hide-on interventions applied to all cattle or carcasses?

Response	Frequency	Weighted Frequency	Weighted Percentage
No	10	14	12.85%
Yes	60	94	87.15%
Total	70	108	100.00%

HOINT4No. What percentage of cattle or carcasses has the hide-on intervention applied to them (e.g., 50%)?
Percentage of hide-on intervention applied, specify _____

Response	Frequency	Weighted Frequency	Weighted Percentage
0	1	1	7.79%
10	1	3	19.42%
50	4	4	29.49%
60	2	2	16.65%
99.8	1	1	7.23%
100	1	3	19.42%

HOINT5. Identify which of the following elements the establishment has incorporated into its procedures for each hide-on intervention and whether it applies each intervention consistently.

	Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs or other prerequisite program			Written scientific support documentation		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Bacteriophages	5	5.31	4.93%	9	9.45	8.78%
Hot water Washing	4	6.20	5.76%	4	6.20	5.76%
Medium water washing	2	2.15	2.00%	1	1.08	1.00%
Cold water washing	13	19.32	17.95%	6	8.05	7.48%
Caustic soda	6	6.53	6.07%	2	2.22	2.06%
Chlorine	7	7.68	7.13%	4	4.51	4.19%
Lactic acid hide-on carcass wash	4	7.51	6.98%	4	7.51	6.98%
Acetic acid hide-on carcass wash	0	0	0.00%			0.00%
Peroxyacetic acid (PAA) hide-on carcass wash	1	1	0.93%	2	2.07	1.92%
Hypobromous acid hide-on carcass wash	3	3.30	3.07%	1	1.08	1.00%
Other antimicrobial hide-on carcass wash	1	1	0.93%	1	1	0.93%

	Written monitoring and verification procedures			Written corrective action when critical limits are not met		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Bacteriophages	4	4	3.92%	0	0	0.00%
Hot water Washing	3	5	4.62%	2	4	3.56%
Medium water washing	3	3	3.06%	0	0	0.00%
Cold water washing	4	6	5.69%	2	2	2.05%
Caustic soda	3	3	3.06%	2	2	2.06%
Chlorine	5	6	5.13%	3	3	3.13%
Lactic acid hide-on carcass wash	4	8	6.98%	3	5	4.49%
Acetic acid hide-on carcass wash	0	0	0.00%	0	0	0.00%
Peroxyacetic acid (PAA) hide-on carcass wash	1	1	0.93%	1	1	0.93%
Hypobromous acid hide-on carcass wash	1	1	1.00%	1	1	1.00%
Other antimicrobial hide-on carcass wash	1	1	0.93%	1	1	0.93%

	Records documenting the monitoring of critical limits or parameters			Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months)		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Bacteriophages	3	3	2.86%	7	7	6.85%
Hot water Washing	2	2	2.12%	6	11	10.68%
Medium water washing	2	2	2.06%	9	13	11.90%
Cold water washing	3	3	3.05%	17	26	23.70%
Caustic soda	3	3	3.06%	5	5	5.06%
Chlorine	6	7	6.27%	8	9	8.20%
Lactic acid hide-on carcass wash	4	8	6.98%	3	3	2.99%
Acetic acid hide-on carcass wash	0	0	0.00%	1	1	1.00%
Peroxyacetic acid (PAA) hide-on carcass wash	1	1	0.93%	3	3	2.92%
Hypobromous acid hide-on carcass wash	1	1	1.00%	2	2	2.14%
Other antimicrobial hide-on carcass wash	1	1	0.93%	3	3	2.99%

	Intervention NOT applied consistently			N/A		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Bacteriophages	2	2	2.07%	59	96	89.08%
Hot water Washing	3	5	4.56%	61	91	84.76%
Medium water washing	0	0	0.00%	60	94	87.10%
Cold water washing	2	4	3.49%	42	65	60.55%
Caustic soda	1	1	1.00%	61	61	56.68%
Chlorine	3	4	3.28%	55	91	84.39%
Lactic acid hide-on carcass wash	1	1	1.00%	64	98	91.02%
Acetic acid hide-on carcass wash	1	1	1.00%	68	105	98.00%
Peroxyacetic acid (PAA) hide-on carcass wash	1	1	1.00%	66	103	96.08%
Hypobromous acid hide-on carcass wash			0.00%	66	103	95.93%
Other antimicrobial hide-on carcass wash	2	2	1.93%	65	102	95.08%

Pre-evisceration (i.e., after hide removal but before evisceration)

PrEINT1. Does the establishment use any pre-evisceration interventions?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	103	173	26.40%
No	194	481	73.60%
Total	297	654	100.00%

PrEINT2. Which of the following pre-evisceration interventions does the establishment use? If the establishment implements any of the following interventions prior to evisceration, when do they implement the intervention?

	Interventions applied throughout the year			Interventions added during High Prevalence Season only (i.e., April – Oct)		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Steam vacuum	42	47	27.02%	0	0	0.00%
Lactic acid carcass wash cabinet	14	15	8.94%	0	0	0.00%
Acetic acid carcass wash cabinet	0	0	0.00%	0	0	0.00%
Peroxyacetic acid (PAA) carcass wash cabinet	14	15	8.63%	0	0	0.00%
Hypobromous acid carcass wash cabinet	5	5	3.08%	0	0	0.00%
Lactic acid carcass hand-held application	22	31	17.77%	0	0	0.00%
Acetic acid carcass hand-held application	1	1	0.71%	0	0	0.00%
Peroxyacetic acid (PAA) hand-held application	6	7	3.99%	0	0	0.00%
Hypobromous acid hand-held application	3	3	1.96%	0	0	0.00%
Other antimicrobial carcass wash (cabinet or hand-held application)	5	7	4.13%	0	0	0.00%
Steam cabinets	1	1	0.58%	0	0	0.00%
Hot water carcass wash	27	37	21.65%	0	0	0.00%
Trimming	84	142	82.51%	0	0	0.00%

	Varies based by suppliers (i.e., different purchase specifications)			N/A		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Steam vacuum	1	1	0.62%	60	125	72.36%
Lactic acid carcass wash cabinet	1	1	0.62%	88	156	90.43%
Acetic acid carcass wash cabinet	0	0	0.00%	103	173	100.00%
Peroxyacetic acid (PAA) carcass wash cabinet	0	0	0.00%	89	158	91.37%
Hypobromous acid carcass wash cabinet	0	0	0.00%	98	167	96.92%
Lactic acid carcass hand-held application	1	1	0.62%	80	141	81.61%
Acetic acid carcass hand-held application	0	0	0.00%	102	171	99.29%
Peroxyacetic acid (PAA) hand-held application	0	0	0.00%	97	166	96.01%
Hypobromous acid hand-held application	0	0	0.00%	100	169	98.04%
Other antimicrobial carcass wash (cabinet or hand-held application)	0	0	0.00%	98	165	95.87%
Steam cabinets	1	1	0.62%	101	171	98.80%
Hot water carcass wash	0	0	0.00%	76	135	78.35%
Trimming	0	0	0.00%	19	30	17.49%

PrEINT3. Does the establishment apply pre-evisceration interventions other than interventions mentioned in the previous question?

Response	Frequency	Weighted Frequency	Weighted Percentage
No	89	158	91.32%
Yes, specify	14	15	8.68%
"Microtox" –peroxyacetic acid, hydrogen peroxide, 1-hydroxyethyidene, and 1-diphosphoric acid	1	1	0.58%
Beef Xide Application by hand sprayer	1	1	0.71%
Beefxide on the rump	1	1	0.58%
cold water wash	1	1	0.71%
Cone Pasturazion; Hind Shank Steam	1	1	0.58%
Flaming, Steam vacuum	1	1	0.66%
High Pressure Wash & Hock Cleaner	1	1	0.58%
hock blow off, leg vacuum, hock vacuum, paper towels, and plastic on the rump	1	1	0.62%
Hock blow-off and paper towel and plastic barriers	1	1	0.62%
Hock Sanitizer	1	1	0.62%
Hock Sucker (not typical vacuum)	1	1	0.62%
Hock wash vacuums	1	1	0.58%
Skinning Line Lactic Acid Cabinet	1	1	0.58%
steam sanitizers on legging bench	1	1	0.62%

PrEINT4. (answer this question ONLY if you selected any of the "Steam Vacuum" options in question PrEINT2) How many employees apply steam vacuums at pre-evisceration as part of the establishment's typical process (specify number of employees by cattle slaughter or market class, e.g. 1, 2, 3)?

	Steers and heifers			Cows and/or bulls		
Response	Frequency	Weighted Frequency	Weighted Percentage	Frequency	Weighted Frequency	Weighted Percentage
0	4	5	9.93%	16	17	35.90%
1	12	14	29.52%	10	12	24.22%
2	6	7	13.99%	6	7	14.46%
3	9	10	20.29%	6	7	13.99%
4	3	3	7.08%	1	1	2.57%
6	4	4	8.55%	2	2	4.66%
7	4	4	8.55%	2	2	4.19%
9	1	1	2.10%	-	-	-

	Veal		
Response	Frequency	Weighted Frequency	Weighted Percentage
0	35	39	81.26%
1	7	8	16.34%
2	1	1	2.40%

PrEINT5. Are the pre-evisceration interventions applied to all carcasses?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	96	163	94.53%
No	7	9	5.47%
Total	103	173	100.00%

PrEINT5No. What percentage of carcasses have the pre-evisceration intervention applied to them (e.g., 50%)?
Percentage of carcasses, specify _____

Response	Frequency	Weighted Frequency	Weighted Percentage
5	1	1	13%
10	1	1	11%
15	1	3	28%
66	1	1	13%
90	1	1	13%
99	1	1	11%
100	1	1	11%

PrEINT6. Identify which of the following elements the establishment has incorporated into its procedures for each pre-evisceration intervention and whether it applies each intervention consistently.

	Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs or other prerequisite program			Written scientific support documentation		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Steam vacuum	28	31	17.91%	29	32	18.28%
Lactic acid carcass wash cabinet	10	11	6.36%	10	11	6.32%
Acetic acid carcass wash cabinet	1	1	0.62%			0.00%
Peroxyacetic acid (PAA) carcass wash cabinet	9	9	5.47%	11	12	6.67%
Hypobromous acid carcass wash cabinet	7	7	4.32%	6	6	3.70%
Lactic acid carcass hand-held application	12	15	8.70%	18	26	15.15%
Acetic acid carcass hand-held application	1	1	0.71%	1	1	0.71%
Peroxyacetic acid (PAA) hand-held application	5	6	3.24%	5	5	3.10%
Hypobromous acid hand-held application	2	2	1.33%	1	1	0.62%
Other antimicrobial carcass wash	7	10	5.60%	6	8	4.89%
Steam cabinets	2	2	1.25%	2	2	1.25%
Hot water carcass wash	22	28	16.01%	20	25	14.42%
Trimming	50	86	49.85%	39	66	38.00%

	Written monitoring and verification procedures			Written corrective action when critical limits are not met		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Steam vacuum	24	26	15.16%	20	22	12.54%
Lactic acid carcass wash cabinet	8	9	5.16%	7	8	4.54%
Acetic acid carcass wash cabinet			0.00%			0.00%
Peroxyacetic acid (PAA) carcass wash cabinet	11	12	6.67%	10	10	6.01%
Hypobromous acid carcass wash cabinet	6	6	3.70%	6	6	3.70%
Lactic acid carcass hand-held application	13	16	9.28%	11	14	7.86%
Acetic acid carcass hand-held application	1	1	0.71%	1	1	0.71%
Peroxyacetic acid (PAA) hand-held application	4	4	2.49%	4	4	2.49%
Hypobromous acid hand-held application	1	1	0.62%	1	1	0.62%
Other antimicrobial carcass wash	5	7	4.31%	4	5	2.75%
Steam cabinets	2	2	1.25%	2	2	1.25%
Hot water carcass wash	18	23	13.39%	18	23	13.47%
Trimming	38	65	37.47%	36	62	36.13%

	Records documenting the monitoring of critical limits or parameters			Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months)		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Steam vacuum	24	26	15.16%	34	38	21.73%
Lactic acid carcass wash cabinet	8	9	5.16%	12	13	7.52%
Acetic acid carcass wash cabinet			0.00%			0.00%
Peroxyacetic acid (PAA) carcass wash cabinet	11	12	6.67%	12	13	7.34%
Hypobromous acid carcass wash cabinet	6	6	3.70%	4	4	2.45%
Lactic acid carcass hand-held application	12	15	8.57%	18	23	13.37%
Acetic acid carcass hand-held application	1	1	0.71%	1	1	0.71%
Peroxyacetic acid (PAA) hand-held application	5	5	3.10%	8	9	5.15%
Hypobromous acid hand-held application	1	1	0.62%	2	2	1.33%
Other antimicrobial carcass wash	6	8	4.89%	6	8	4.89%
Steam cabinets	2	2	1.25%	2	2	1.25%
Hot water carcass wash	17	22	12.76%	20	27	15.43%
Trimming	38	66	38.40%	52	99	57.42%

	Intervention NOT applied consistently			N/A		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Steam vacuum	1	3	1.56%	60	123	71.51%
Lactic acid carcass wash cabinet	1	3	1.56%	88	155	89.67%
Acetic acid carcass wash cabinet	1	3	1.56%	101	169	97.82%
Peroxyacetic acid (PAA) carcass wash cabinet	1	3	1.56%	88	155	89.81%
Hypobromous acid carcass wash cabinet	2	4	2.18%	95	162	94.12%
Lactic acid carcass hand-held application	2	4	2.13%	76	133	77.16%
Acetic acid carcass hand-held application	1	3	1.56%	101	169	97.73%
Peroxyacetic acid (PAA) hand-held application	1	3	1.56%	94	161	93.30%
Hypobromous acid hand-held application	1	3	1.56%	100	168	97.11%
Other antimicrobial carcass wash	1	3	1.56%	94	159	92.27%
Steam cabinets	1	3	1.56%	100	168	97.20%
Hot water carcass wash	1	3	1.56%	75	134	77.59%
Trimming	6	7	3.77%	30	47	27.22%

PreEINT7. Does the establishment apply interventions other than interventions mentioned in the previous question?

Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
No	90	157	90.97%
Yes, specify	13	16	9.03%
"Microtox" –peroxyacetic acid, hydrogen peroxide, 1-hydroxyethyidene, and 1-diphosphoric acid	1	1	0.58%
Beef Xide Application by hand held sprayer	1	1	0.71%
Chlorine rinse 50 ppm	1	3	1.56%
cold water wash	1	1	0.71%
Flaming, Steam vacuum	1	1	0.66%
High Pressure Wash & Hock Cleaner	1	1	0.58%
Hind Shank Hot Water & Steam	1	1	0.58%
hock blow off, leg vacuum, hock vacuum, paper towels, and plastic on the rump	1	1	0.62%
Hock sanitizers	1	1	0.62%
Inspexx spray cabinets final rail, sales cooler, hot box chill water with bovibom	1	1	0.62%
Skinning Line Lactic Acid Cabinet	1	1	0.58%
steam blow off rumps/hocks	1	1	0.58%
Steam hock blow off	1	1	0.62%

Post-evisceration

PoEINT1. Does the establishment use any post-evisceration interventions?

Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Yes	287	627	95.89%
No	10	27	4.11%
Total	297	654	100.00%

PoEINT2. Which of the following post-evisceration interventions does the establishment use? If the establishment implements any of the following post-evisceration interventions, when do they implement the intervention?

	Interventions applied throughout the year			Interventions added during High Prevalence Season only (i.e., April – Oct)		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Steam vacuum	30	36	5.75%	0	0	0.00%
Lactic acid carcass wash cabinet	31	37	5.88%	0	0	0.00%
Acetic acid carcass wash cabinet	6	8	1.35%	0	0	0.00%
Peroxyacetic acid (PAA) carcass wash cabinet	12	13	2.12%	0	0	0.00%
Hypobromous acid carcass wash cabinet	18	19	3.10%	1	1	0.16%
Lactic acid carcass hand-held application	135	315	50.32%	1	1	0.17%
Acetic acid carcass hand-held application	32	77	12.23%	0	0	0.00%
Peroxyacetic acid (PAA) hand-held application	21	28	4.45%	0	0	0.00%
Hypobromous acid hand-held application	2	2	0.34%	0	0	0.00%
Other antimicrobial carcass wash (cabinet or hand-held application)	44	74	11.83%	0	0	0.00%
Steam cabinets	16	19	3.10%	0	0	0.00%
Hot water carcass wash	129	262	41.79%	0	0	0.00%
Trimming	232	499	79.54%	0	0	0.00%

	Varies based by suppliers (i.e., different purchase specifications)			N/A		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Steam vacuum	0	1	0.17%	256	590	94.05%
Lactic acid carcass wash cabinet	3	6	1.03%	252	582	92.89%
Acetic acid carcass wash cabinet	0	0	0.00%	280	617	98.46%
Peroxyacetic acid (PAA) carcass wash cabinet	0	0	0.00%	274	612	97.69%
Hypobromous acid carcass wash cabinet	2	2	0.37%	265	603	96.18%
Lactic acid carcass hand-held application	2	2	0.34%	148	307	48.97%
Acetic acid carcass hand-held application	1	3	0.43%	253	546	87.14%
Peroxyacetic acid (PAA) hand-held application	0	0	0.00%	265	598	95.35%
Hypobromous acid hand-held application	0	0	0.00%	284	623	99.46%
Other antimicrobial carcass wash (cabinet or hand-held application)	0	0	0.00%	242	551	87.97%
Steam cabinets	0	0	0.00%	270	606	96.71%
Hot water carcass wash	2	4	0.62%	155	360	57.39%
Trimming	1	3	0.43%	53	124	19.83%

PoEINT3. Are the post-evisceration interventions applied to all carcasses?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	281	620	98.90%
No	5	6	0.90%
No response	1	1	0.20%
Total	287	627	100.00%

PoEINT3No. What percentage of carcasses have the post-evisceration intervention applied to them (e.g., 50%)?

Response	Frequency	Weighted Frequency	Weighted Percentage
10	1	1	21.60%
50	1	1	18.99%
66	1	1	21.60%
82	1	1	18.81%
100	1	1	18.99%

PoEINT4. Identify which of the following elements the establishment has incorporated into its procedures for each post-evisceration intervention and whether it applies to each intervention consistently. (Select all that apply).

	Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs or other prerequisite program			Written scientific support documentation		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Steam vacuum	20	23	3.64%	16	18	2.87%
Lactic acid carcass wash cabinet	37	50	7.77%	34	45	6.97%
Acetic acid carcass wash cabinet	2	2	0.38%	1	1	0.19%
Peroxyacetic acid (PAA) carcass wash cabinet	10	11	1.74%	11	12	1.89%
Hypobromous acid carcass wash cabinet	19	21	3.22%	22	24	3.74%
Lactic acid carcass hand-held application	137	319	49.93%	131	309	48.26%
Acetic acid carcass hand-held application	31	83	12.94%	27	73	11.49%
Peroxyacetic acid (PAA) hand-held application	20	27	4.19%	18	24	3.80%
Hypobromous acid hand-held application	2	2	0.34%	2	2	0.34%
Other antimicrobial carcass wash	38	68	10.58%	39	68	10.70%
Steam cabinets	17	20	3.19%	16	19	3.00%
Hot water carcass wash	110	218	34.17%	103	210	32.91%
Trimming	205	456	71.39%	172	385	60.16%

	Written monitoring and verification procedures			Written corrective action when critical limits are not met		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Steam vacuum	13	15	2.33%	13	15	2.33%
Lactic acid carcass wash cabinet	34	45	6.97%	33	43	6.80%
Acetic acid carcass wash cabinet	1	1	0.19%	1	1	0.19%
Peroxyacetic acid (PAA) carcass wash cabinet	10	11	1.73%	9	10	1.55%
Hypobromous acid carcass wash cabinet	21	23	3.56%	19	20	3.20%
Lactic acid carcass hand-held application	126	297	46.42%	122	288	45.00%
Acetic acid carcass hand-held application	27	73	11.49%	28	76	11.91%
Peroxyacetic acid (PAA) hand-held application	18	24	3.80%	17	23	3.62%
Hypobromous acid hand-held application	2	2	0.34%	2	2	0.34%
Other antimicrobial carcass wash	40	70	10.89%	33	57	8.89%
Steam cabinets	16	19	3.00%	16	19	3.00%
Hot water carcass wash	90	178	27.92%	87	172	26.91%
Trimming	178	404	63.21%	174	393	61.50%

	Records documenting the monitoring of critical limits or parameters			Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months)		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Steam vacuum	16	18	2.88%	23	26	4.12%
Lactic acid carcass wash cabinet	34	45	6.97%	33	43	6.78%
Acetic acid carcass wash cabinet	1	1	0.19%	1	1	0.19%
Peroxyacetic acid (PAA) carcass wash cabinet	10	11	1.73%	10	11	1.72%
Hypobromous acid carcass wash cabinet	22	24	3.71%	20	21	3.35%
Lactic acid carcass hand-held application	127	299	46.84%	119	283	44.27%
Acetic acid carcass hand-held application	29	79	12.33%	27	68	10.60%
Peroxyacetic acid (PAA) hand-held application	18	24	3.80%	17	22	3.38%
Hypobromous acid hand-held application	2	2	0.34%	2	2	0.34%
Other antimicrobial carcass wash	39	68	10.70%	37	66	10.38%
Steam cabinets	16	19	3.00%	16	19	3.00%
Hot water carcass wash	91	180	28.11%	97	197	30.83%
Trimming	177	398	62.28%	173	391	61.24%

	Intervention Not applied consistently			N/A		
Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Steam vacuum	3	6	1.01%	256	598	93.57%
Lactic acid carcass wash cabinet	3	7	1.03%	248	582	91.02%
Acetic acid carcass wash cabinet	2	5	0.84%	283	629	98.41%
Peroxyacetic acid (PAA) carcass wash cabinet	4	8	1.19%	273	618	96.70%
Hypobromous acid carcass wash cabinet	5	9	1.39%	261	606	94.72%
Lactic acid carcass hand-held application	10	17	2.70%	142	303	47.35%
Acetic acid carcass hand-held application	4	9	1.45%	253	548	85.66%
Peroxyacetic acid (PAA) hand-held application	4	9	1.43%	265	605	94.60%
Hypobromous acid hand-held application	3	6	1.01%	283	629	98.45%
Other antimicrobial carcass wash	4	8	1.20%	242	558	87.36%
Steam cabinets	3	6	1.01%	268	611	95.59%
Hot water carcass wash	5	10	1.63%	162	383	59.87%
Trimming	15	28	4.34%	59	136	21.28%

PoEINT5. (Answer this question ONLY if you selected of the "Steam Vacuum" options in question PoEINT4) If steam vacuum is selected, how many employees apply steam vacuums at post-evisceration as part of the establishment's typical process (specify number of employees, e.g., 1, 2, 3)? Please answer the question based on your observations of establishment employees applying steam vacuum at post evisceration.

Number of employees, specify _____

Response	Frequency	Weighted Frequency	Weighted Percentage
1	9	10	26.45%
2	6	7	18.35%
3	3	4	9.08%
4	3	3	8.91%
No response	10	14	37.21%

Carcass Sampling and Testing

CST1. Does the establishment sample beef carcasses?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	235	493	75.46%
No	60	158	24.17%
No response	2	2	0.36%
Total	297	654	100.00%

CST2. At what frequency and sampling locations does the establishment collect samples for conducting verification testing on carcasses? (Select all that apply)

	1 carcass per 300 head slaughtered (per 310.25)			1 carcass per week for up to 13 per year (per 310.25)		
Sample Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on (prior to hide removal)	4	5	0.95%	0	0	0.00%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	7	10	1.97%	2	4	0.79%
Pre-chill (in the hotbox prior to chill down)	19	27	5.55%	5	12	2.43%
Post-chill	96	139	28.12%	96	250	50.67%

	N/A		
Sample Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on (prior to hide removal)	229	486	98.60%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	224	477	96.79%
Pre-chill (in the hotbox prior to chill down)	209	452	91.58%
Post-chill	42	104	20.99%

CST2OtherHeadSampled. How many "Other" head sampled per week of slaughter (e.g. 2 head per week of slaughter) at the following locations?

Sample Locations	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	0	147	326	66.03%
	1-10	6	7	1.40%
	11-30	11	12	2.39%
	31+	2	2	0.47%
	No response	69	147	29.71%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	0	142	320	64.86%
	1-10	10	11	2.31%
	11-30	12	13	2.64%
	31+	1	1	0.22%
	No response	70	148	29.96%
Pre-chill (in the hotbox prior to chill down)	0	134	306	62.07%
	1-10	18	26	5.18%
	11-30	12	13	2.61%
	31+	4	5	0.92%
	No response	67	144	29.22%
Post-chill	0	118	276	55.97%
	1-10	52	90	18.18%
	11-30	8	9	1.77%
	31+	4	4	0.89%
	No response	53	114	23.19%

CST3. Does the establishment collect carcass samples in a location other than the ones listed in the previous question?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes, specify (Responses not reported)	17	27	5.43%
No	216	464	94.12%
No response	2	2	0.45%
Total	235	493	100.00%

CST4. At what frequencies is carcass verification performed at steps in the sanitary dressing process? (Select all that apply)

	Number Per Year				Number Per Week			
Sample Locations	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	0	11	20	3.98%	0	9	14	2.89%
	1-52	5	7	1.48%	1-10	7	10	1.97%
	53-1200	2	2	0.41%	11-25	10	11	2.30%
	1201+	4	4	0.87%	26+	5	5	1.11%
	No response	213	460	93.27%	No response	204	452	91.73%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	0	9	18	3.56%	0	8	13	2.72%
	1-52	14	27	5.42%	1-10	11	16	3.17%
	53-1200	4	4	0.86%	11-25	13	18	3.63%
	1201+	6	7	1.34%	26+	9	10	2.01%
	No response	202	438	88.82%	No response	194	436	88.47%
Pre-chill (in the hotbox prior to chill down)	0	7	14	2.81%	0	7	12	2.52%
	1-52	13	25	5.16%	1-10	16	26	5.34%
	53-1200	4	4	0.86%	11-25	11	14	2.84%
	1201+	5	6	1.12%	26+	7	7	1.51%
	No response	206	444	90.05%	No response	194	433	87.79%
Post-chill	0	3	6	1.29%	0	5	9	1.77%
	1-52	98	259	52.59%	1-10	59	99	20.05%
	53-1200	10	13	2.65%	11-25	11	14	2.89%
	1201+	10	10	2.12%	26+	15	16	3.25%
	No response	114	204	41.35%	No response	145	355	72.03%

	N/A			
Sample Locations	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	N/A	175	392	79.38%
	No response	60	102	20.62%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	N/A	162	368	74.56%
	No response	73	126	25.44%
Pre-chill (in the hotbox prior to chill down)	N/A	159	361	73.10%
	No response	76	133	26.90%
Post-chill	N/A	55	113	22.96%
	No response	180	380	77.04%

CST5. For what organism(s) does the establishment test carcasses at each sampling location checked in CST2? (Select all that apply)

	generic *E. coli*			Enterobacteriaciae		
Sample Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	4	5	0.95%	3	3	0.68%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	15	20	4.11%	4	5	0.93%
Pre-chill (in the hotbox prior to chill down)	25	38	7.61%	5	6	1.15%
Post-chill	185	371	75.24%	3	3	0.70%

	APC			*E. coli* O157:H7		
Sample Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	21	25	5.04%	3	3	0.70%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	33	46	9.36%	1	1	0.22%
Pre-chill (in the hotbox prior to chill down)	31	41	8.31%	12	18	3.71%
Post-chill	29	45	9.11%	81	198	40.07%

	Non-O157 STEC			Virulence genes (*stx, eae, uidA, spi*)		
Sample Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	1	1	0.25%	3	3	0.68%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	0	0	0.00%	4	4	0.89%
Pre-chill (in the hotbox prior to chill down)	1	1	0.25%	4	4	0.89%
Post-chill	8	15	3.11%	0	0	0.00%

	Salmonella			Total coliform count		
Sample Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	0	0	0.00%	3	3	0.70%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	2	2	0.50%	8	11	2.24%
Pre-chill (in the hotbox prior to chill down)	4	8	1.59%	8	11	2.24%
Post-chill	7	10	1.99%	11	18	3.56%

	N/A		
Sample Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	210	464	94.02%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	196	439	88.95%
Pre-chill (in the hotbox prior to chill down)	184	417	84.61%
Post-chill	14	31	6.36%

CST6. Does the establishment collect samples for other pathogens not listed in the chart?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes, specify	3	5	1.04%
Coliforms	1	3	0.54%
Listeria	1	1	0.25%
Post evis prior to hot box	1	1	0.25%
No	231	487	98.74%
No response	1	1	0.22%
Total	235	493	100.00%

CST7. For each sampling location where the establishment collects samples, indicate the establishment's sample collection method.

	Sponge 300 cm2 surface (FSIS method)			Sponge 8,000 cm2 surface (ARS-MARC method)		
Sampling Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	13	15	2.98%	6	9	1.72%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	18	27	5.47%	14	17	3.45%
Pre-chill (in the hotbox prior to chill down)	29	49	9.84%	15	18	3.69%
Post-chill	180	364	73.75%	12	24	4.91%

	Surface wash (automated method, e.g., spray vacuum method (M-Vac))			Surface excision (manual N-60 carcass sampling)		
Sampling Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	0	0	0.00%	0	0	0.00%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	0	0	0.00%	0	0	0.00%
Pre-chill (in the hotbox prior to chill down)	0	0	0.00%	0	0	0.00%
Post-chill	0	0	0.00%	24	68	13.85%

	N/A			No response		
Sampling Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	215	469	95.08%	1	1	0.22%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	202	448	90.87%	1	1	0.22%
Pre-chill (in the hotbox prior to chill down)	190	425	86.25%	1	1	0.22%
Post-chill	18	36	7.26%	1	1	0.22%

CST8. For each sampling location where the establishment collects samples, indicate what type of laboratory the establishment uses.

	In-house Lab			Contract Lab		
Sampling Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	7	8	1.65%	16	19	3.92%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	11	13	2.56%	25	37	7.52%
Pre-chill (in the hotbox prior to chill down)	16	23	4.64%	32	50	10.10%
Post-chill	36	51	10.39%	185	417	84.55%

	N/A			No response		
Sampling Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	211	465	94.22%	1	1	0.22%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	33	198	442.4614	1	1	0.22%
Pre-chill (in the hotbox prior to chill down)	31	186	419.4523	1	1	0.22%
Post-chill	13	24	4.83%	1	1	0.22%

CST9. Approximately, how long does it take the establishment to collect a single carcass sample for each applicable sample location?

	15 minutes or less			30 minutes		
Sampling Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	23	27	5.53%	1	1	0.25%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	33	46	9.37%	2	4	0.79%
Pre-chill (in the hotbox prior to chill down)	45	66	13.38%	3	7	1.34%
Post-chill	168	336	68.17%	33	85	17.16%

	45 minutes			1 hour		
Sampling Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	0	0	0.00%	0	0	0.00%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	0	0	0.00%	0	0	0.00%
Pre-chill (in the hotbox prior to chill down)	0	0	0.00%	0	0	0.00%
Post-chill	6	16	3.27%	7	17	3.51%

	More than 1 hour			N/A		
Sampling Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	0	0	0.00%	210	464	94.00%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	1	1	0.25%	198	441	89.37%
Pre-chill (in the hotbox prior to chill down)	1	1	0.25%	185	418	84.82%
Post-chill	1	1	0.20%	19	37	7.46%

	No response		
Sampling Locations	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Hide-on	1	1	0.22%
Pre-evisceration (after hide removal, prior to antimicrobial intervention)	1	1	0.22%
Pre-chill (in the hotbox prior to chill down)	1	1	0.22%
Post-chill	1	1	0.22%

CST10. How is process control data analyzed?

Response	Frequency	Weighted Frequency	Weighted Percentage
Use statistical process control charting methods	138	282	57.12%
Use marginal (m) and unacceptable (M) limits based on moving window	57	111	22.59%
Other, specify (Responses not reported)	37	95	19.33%
No response	3	5	0.97%
Total	235	493	100.00%

CST11. Does the establishment process control data show that their process is under control?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	225	471	95.51%
No	9	21	4.27%
No response	1	1	0.22%
Total	235	493	100.00%

CST12. How many sample results identified detectable generic *E. coli* or other indicator organisms in the most recent 100 samples, or last two years (specify number of results, e.g. 0, 1, 2, 3 out of total number of samples)?

Responses not reported.

Fabrication Interventions

FabINT1. Does the establishment fabricate carcasses? (Select all that apply)

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes, the establishment fabricates beef carcasses	243	637.5426	27.93%
Yes, the establishment fabricates veal carcasses	41	122.4176	5.36%
No	227	1623.876	71.13%
No response	3	3.44478	0.15%

FabINT2. (Answer this question ONLY if you selected "Yes, the establishment fabricates veal carcasses" in question FabINT1)
Does the veal processing establishment commingle trim produced from veal carcasses, halves, or quarters from multiple supplying slaughter establishments?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	0	0	0.00%
No, the processing establishment does not commingle trim it produces from source materials from multiple suppliers.	15	34	27.61%
No, the processing establishment only receives veal carcasses, halves, or quarters from a single supplying slaughter establishment.	26	89	72.39%
Total	41	122	100.00%

FabINT3. (Answer this question ONLY if you selected "Yes, the establishment fabricates beef carcasses" in FabINT1)
Are 100% of the carcasses from cattle slaughtered on-site? (Do not include carcasses from external/outside sources)

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	217	476	74.68%
No	26	161	25.32%
Total	243	638	100.00%

FabINT4. Approximately, what percentage of fabricated carcasses are from cattle slaughtered on-site (specify percentage, e.g., 0%, 25%, 100%)?

Response	Frequency	Weighted Frequency	Weighted Percentage
0	14	137	84.90%
5	1	3	1.66%
50	1	3	1.66%
70	2	4	2.33%
75	1	1	0.66%
90	1	1	0.66%
95	3	5	3.13%
99	2	5	3.33%
100	1	3	1.66%
Total	26	161	100.00%

Chilled Carcasses or Carcass Halves

FabCarcINT1. Does the establishment use any interventions on chilled carcasses prior to fabrication?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	99	203	30.93%
No	151	453	69.07%
Total	250	656	100.00%

FabCarcINT2. Which interventions does the establishment apply to chilled carcass or carcass halves?
If the establishment implements any of the following interventions to chilled carcass or carcass halves, when do they implement the intervention?

	Interventions applied throughout the year			Interventions added during High Prevalence Season only (i.e., April – Oct)		
Types of Fabricated Carcass interventions	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	41	86	42.56%	0	0	0.00%
Acetic Acid (AA)	5	10	5.10%	0	0	0.00%
Lauramide arginine ethyl ester (LAE)	0	0	0.00%	0	0	0.00%
Acidified sodium chloride (ASC)	14	21	10.28%	0	0	0.00%
Hypobromous acid	5	5	2.61%	0	0	0.00%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	21	25	12.21%	0	0	0.00%

	Varies by suppliers (i.e., purchase specifications)			N/A		
Types of Fabricated Carcass interventions	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	2	4	1.93%	56	113	55.51%
Acetic Acid (AA)	0	0	0.00%	94	192	94.90%
Lauramide arginine ethyl ester (LAE)	0	0	0.00%	99	203	100.00%
Acidified sodium chloride (ASC)	0	0	0.00%	85	182	89.72%
Hypobromous acid	1	1	0.60%	93	196	96.78%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	1	3	1.32%	77	175	86.46%

FABCarcINT3. Does the establishment apply interventions other than interventions mentioned in the previous question?

Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Yes, specify (Responses not reported)	21	74	36.61%
No	78	129	63.39%
Total	99	203	100.00%

FABCarcINT4. Identify which of the following elements the establishment has incorporated into its procedures for each carcass fabrication intervention and whether it applies to each intervention consistently. (Select all that apply).

	Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program			Written scientific support documentation		
Pre-harvest management practices or controls	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	40	85	42.07%	38	83	40.71%
Acetic Acid (AA)	4	9	4.50%	4	9	4.50%
Lauramide arginine ethyl ester (LAE)	0	0	0.00%	0	0	0.00%
Acidified sodium chloride (ASC)	11	18	8.73%	13	20	9.75%
Hypobromous acid	5	5	2.68%	6	7	3.22%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	18	23	11.46%	22	27	13.46%

	Written monitoring and verification procedures			Written corrective action when critical limits are not met		
Pre-harvest management practices or controls	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	35	76	37.61%	30	64	31.79%
Acetic Acid (AA)	3	6	3.17%	3	6	3.17%
Lauramide arginine ethyl ester (LAE)	0	0	0.00%	0	0	0.00%
Acidified sodium chloride (ASC)	11	18	8.73%	9	14	6.80%
Hypobromous acid	5	5	2.68%	5	5	2.68%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	20	25	12.41%	19	24	11.88%

	Records documenting the monitoring of critical limits or parameters			Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months)		
Pre-harvest management practices or controls	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	37	80	39.53%	35	75	36.74%
Acetic Acid (AA)	4	9	4.50%	3	6	3.17%
Lauramide arginine ethyl ester (LAE)	0	0	0.00%	0	0	0.00%
Acidified sodium chloride (ASC)	11	18	8.73%	12	19	9.22%
Hypobromous acid	5	5	2.68%	5	5	2.61%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	20	25	12.41%	18	23	11.31%

	Intervention Not applied consistently			N/A		
Pre-harvest management practices or controls	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	3	5	2.38%	55	112	55.02%
Acetic Acid (AA)	0	0	0.00%	95	194	95.50%
Lauramide arginine ethyl ester (LAE)	0	0	0.00%	99	203	100.00%
Acidified sodium chloride (ASC)	0	0	0.00%	86	183	90.25%
Hypobromous acid	2	2	1.10%	93	196	96.78%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	3	5	2.38%	75	173	85.33%

FabCarcINT5. Does the establishment conduct on-going verification testing (e.g., testing for pathogen, indicator organism, or both) on the fabricated carcasses?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	29	60	29.56%
No	70	143	70.44%
Total	99	203	100.00%

FabCarcINT6. Approximately how frequently does the establishment conduct on-going verification testing (e.g., testing for pathogen, indicator organism, or both) on the fabricated carcasses? Select the most appropriate way of categorizing the sampling (i.e., per year or per week). Then specify the number of samples per year, e.g., 4, 100, 500 or specify the number of samples per week, e.g., 1, 5, 60.

Response	Frequency	Weighted Frequency	Weighted Percentage
Per year, specify	14	41	69.09%
<10	8	20	33.14%
10-100	5	20	33.91%
>100	1	1	2.04%
Per week, specify	15	19	30.91%
<10	7	9	15.70%
10-100	6	7	11.50%
>100	2	2	3.71%
Total	29	60	100.00%

FabCarcINT7. What pathogens or Virulence Genes does the establishment test as part of on-going verification testing? For each pathogen or Virulence Gene tested, which type of laboratory does the establishment use for analysis?

	In-house laboratory			Contract laboratory		
Fab Carcass Samples	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
E. coli O157:H7	1	11	18.69%	23	41	69.04%
Salmonella	0	0	0.00%	4	5	7.66%
non-O157 STEC	0	0	0.00%	5	6	9.57%
Virulence genes (*stx, eae, uidA, spi*)	0	0	0.00%	1	3	4.48%

	N/A		
Fab Carcass Samples	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
E. coli O157:H7	5	7	12.27%
Salmonella	25	55	92.34%
non-O157 STEC	24	54	90.43%
Virulence genes (*stx, eae, uidA, spi*)	28	57	95.52%

FabCarcINT8. (Answer this question ONLY is you selected options 1, 3, and 5 in question FabCarcINT7)
If the test screen is positive, or if the test is confirmed positive for STEC or virulence genes, what action does the establishment take?

	Screen positive for STEC		
Action Establishment Takes	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to confirmation (for screen positives only)	3	5	9.14%
Divert all product to cooking	4	5	8.31%
Destroy product	1	1	1.95%
Sell product for intact use	0	0	0.00%
Divert raw any product used for non-intact and trimmings to cooking	0	0	0.00%
Destroy fabricated carcass	1	1	1.81%
Recondition fabricated carcass	0	0	0.00%

	Confirm positive for STEC		
Action Establishment Takes	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to confirmation (for screen positives only)	6	10	17.88%
Divert all product to cooking	7	11	20.24%
Destroy product	5	7	13.28%
Sell product for intact use	0	0	0.00%
Divert raw any product used for non-intact and trimmings to cooking	0	0	0.00%
Destroy fabricated carcass	0	0	0.00%
Recondition fabricated carcass	0	0	0.00%

	N/A		
Action Establishment Takes	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to confirmation (for screen positives only)	16	40	72.98%
Divert all product to cooking	14	40	71.46%
Destroy product	19	47	84.77%
Sell product for intact use	25	55	100.00%
Divert raw any product used for non-intact and trimmings to cooking	25	55	100.00%
Destroy fabricated carcass	24	54	98.19%
Recondition fabricated carcass	25	55	100.00%

FabCarcINT9. (Answer this question ONLY if you selected options 1, 3, and 5 in question FabCarcINT7)
Does the establishment take action for STEC positives in a way not listed in the previous question?

Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Yes, specify	2	2	3.74%
O157:H7 divert to cooking	1	1	1.81%
Reassess HACCP-Notify their costumers	1	1	1.93%
No	23	53	96.26%
Total	25	55	100.00%

FabCarcINT10. (Answer this question ONLY if option 2 is selected in question FabCarcINT7)
If the test is positive for *Salmonella* or "other", what action does the establishment take?

	Positive test for *Salmonella*			Positive test for Other		
Action Establishment Takes	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to serotyping	1	1	24.88%	0	0	0.00%
Proceed to confirmation	1	1	24.88%	0	0	0.00%
Divert to cooking	1	1	24.88%	1	1	26.67%
Destroy product	1	1	24.88%	1	1	26.67%
Sell product	1	1	21.77%	0	0	0.00%
Other	1	1	26.67%	0	0	0.00%

	N/A		
Action Establishment Takes	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to serotyping	3	3	75.12%
Proceed to confirmation	3	3	75.12%
Divert to cooking	2	2	48.44%
Destroy product	2	2	48.44%
Sell product	3	4	78.23%
Other	3	3	73.33%

FabCarcINT11. (Answer this question ONLY if option 2 is selected in question FabCarcINT7)
Does the establishment take action for *Salmonella* or "other" positives in a way not listed in the previous question?

Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Yes, specify	2	2	48.44%
Inform customer	1	1	21.77%
Investigate each positive *Salmonella* spp.	1	1	26.67%
No	2	2	51.56%
Total	4	5	100.00%

FabCarcINT12. Does the establishment test for any pathogens other than *E. coli* O157:H7, *Salmonella*, non-O157 STEC, and Virulence genes (*stx*, *eae*, *uidA*, *spi*)?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes, specify	1	1	2.04%
Listeria	1	1	2.04%
No	28	59	97.96%
Total	29	60	100.00%

Primals/Subprimals Question Series

FabPrimSubprimINT1. Does the establishment produce primals or subprimals?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	206	525	79.62%
No	44	131	19.85%
Blank	3	3	0.52%
Total	253	659	100.00%

FabPrimSubprimINT2. Does the establishment identify the intended use of the primals or subprimals?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	130	325	79.75%
The intended use in unclear or not supported	28	82	20.25%
No	0	0	0.00%
Total	158	407	100.00%

FabPrimSubprimINT3. What is the intended use of the primals or subprimals and what controls are in place to regulate the intended use?

Primals/ Subprimals Intended Use- Raw, non-intact use (e.g., ground beef, hamburger, or patties) at the establishment	Frequency	Weighted Frequency	Weighted Percentage
Est. has a contractual agreement with the receiving establishment so the producing establishment has knowledge of the receiving establishment's production process	18	49	12.04%
Est. maintains records showing that the official establishment receiving the raw product processes all of the product into RTE product, such as a copy of HACCP records showing the product meets a lethality CCP matched with bills of lading with	6	11	2.82%
Est. receives letters of guarantee showing that all product from a particular product class is further processed into RTE product and maintains on-going communication with the receiving establishment to verify that all its product is being processed as RTE	2	5	1.32%
N/A	132	341	83.82%

Primals/ Subprimals Intended Use- Raw, non-intact use (e.g., ground beef, hamburger, or patties) at ***another*** establishment	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Est. has a contractual agreement with the receiving establishment so the producing establishment has knowledge of the receiving establishment's production process	12	15	3.63%
Est. maintains records showing that the official establishment receiving the raw product processes all of the product into RTE product, such as a copy of HACCP records showing the product meets a lethality CCP matched with bills of lading with	5	7	1.81%
Est. receives letters of guarantee showing that all product from a particular product class is further processed into RTE product and maintains on-going communication with the receiving establishment to verify that all its product is being processed as RTE	3	3	0.81%
N/A	138	382	93.76%

Primals/ Subprimals Intended Use- Raw, intact use at the establishment	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Est. has a contractual agreement with the receiving establishment so the producing establishment has knowledge of the receiving establishment's production process	24	72	17.66%
Est. maintains records showing that the official establishment receiving the raw product processes all of the product into RTE product, such as a copy of HACCP records showing the product meets a lethality CCP matched with bills of lading with	11	27	6.74%
Est. receives letters of guarantee showing that all product from a particular product class is further processed into RTE product and maintains on-going communication with the receiving establishment to verify that all its product is being processed as RTE	3	7	1.62%
N/A	120	301	73.98%

Primals/ Subprimals Intended Use- Raw, intact use at another establishment	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Est. has a contractual agreement with the receiving establishment so the producing establishment has knowledge of the receiving establishment's production process	19	24	6.00%
Est. maintains records showing that the official establishment receiving the raw product processes all of the product into RTE product, such as a copy of HACCP records showing the product meets a lethality CCP matched with bills of lading with	3	4	0.88%
Est. receives letters of guarantee showing that all product from a particular product class is further processed into RTE product and maintains on-going communication with the receiving establishment to verify that all its product is being processed as RTE	2	2	0.53%
N/A	134	377	92.59%

Primals/ Subprimals Intended Use- RTE product at the establishment	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Est. has a contractual agreement with the receiving establishment so the producing establishment has knowledge of the receiving establishment's production process	4	8	1.88%
Est. maintains records showing that the official establishment receiving the raw product processes all of the product into RTE product, such as a copy of HACCP records showing the product meets a lethality CCP matched with bills of lading with	5	12	2.94%
Est. receives letters of guarantee showing that all product from a particular product class is further processed into RTE product and maintains on-going communication with the receiving establishment to verify that all its product is being processed as RTE	2	4	0.96%
N/A	147	384	94.22%

Primals/ Subprimals Intended Use- RTE product at another establishment	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Est. has a contractual agreement with the receiving establishment so the producing establishment has knowledge of the receiving establishment's production process	8	11	2.62%
Est. maintains records showing that the official establishment receiving the raw product processes all of the product into RTE product, such as a copy of HACCP records showing the product meets a lethality CCP matched with bills of lading with	4	6	1.47%
Est. receives letters of guarantee showing that all product from a particular product class is further processed into RTE product and maintains on-going communication with the receiving establishment to verify that all its product is being processed as RTE	6	7	1.75%
N/A	140	384	94.17%

FabPrimSubprimINT4. Does the establishment use controls other than the ones listed in the previous question?

Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Yes, specify (Responses not reported)	27	66	16.20%
No	131	341	83.80%
Total	158	407	100.00%

FabPrimSubprimINT5. If the establishment has been identified in the STEPS database in the last two years, how did the establishment respond to the STEPS notification that a further processor used its primals or subprimals in raw, non-intact product that tested positive for *E. coli* O157:H7? (select all that apply)

Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Developed controls to ensure that product is used as intended (Controls may include letters to receiving establishments. FSIS would expect on-going communication with the receiving establishment so that the producing establishment can verify that all of its product is used as intended on an on-going basis.)	8	22	4.23%
Added an antimicrobial intervention to its primals or subprimals	5	7	1.41%
Developed a sampling and testing program for its primals or subprimals	2	2	0.39%
Other, specify (Responses not reported)	13	16	3.02%
Not Applicable	182	483	91.44%

FabPrimSubprimINT6. Does the establishment use any interventions to primals or subprimals during fabrication?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	68	110	20.90%
No	138	414	78.45%
No response	3	3	0.65%
Total	209	528	100.00%

FabPrimSubprimINT7. Which interventions does the establishment apply to primal or subprimals? If the establishment implements any of the following interventions to primal or subprimals, when do they implement the intervention?

Interventions- Lactic acid (LAA)	Frequency	Weighted Frequency	Weighted Percentage
Blank	3	3	3.03%
Interventions applied throughout the year	25	46	40.39%
N/A	41	62	54.44%
Varies by suppliers (i.e., purchase specifications)	2	2.45	2.15%

Interventions- Acetic Acid (AA)	Frequency	Weighted Frequency	Weighted Percentage
Blank	3	3	3.03%
Interventions applied throughout the year	3	6	5.65%
N/A	65	104	91.32%
Varies by suppliers (i.e., purchase specifications)	-	-	-

Interventions- Lauramide arginine ethyl ester (LAE)	Frequency	Weighted Frequency	Weighted Percentage
Blank	3	3	3.03%
Interventions applied throughout the year	-	-	-
N/A	68	110	96.97%
Varies by suppliers (i.e., purchase specifications)	-	-	-

Interventions- Acidified sodium chloride (ASC)	Frequency	Weighted Frequency	Weighted Percentage
Blank	3	3	3.03%
Interventions applied throughout the year	7	9	7.53%
N/A	61	102	89.44%
Varies by suppliers (i.e., purchase specifications)	-	-	-

Interventions- Hypobromous acid	Frequency	Weighted Frequency	Weighted Percentage
Blank	3	3	3.03%
Interventions applied throughout the year	-	-	-
N/A	68	110	96.97%
Varies by suppliers (i.e., purchase specifications)	-	-	-

Interventions- Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	Frequency	Weighted Frequency	Weighted Percentage
Blank	3	3	3.03%
Interventions applied throughout the year	35	42	36.66%
N/A	33	69	60.31%
Varies by suppliers (i.e., purchase specifications)	-	-	-

FabPrimSubprimINT8. Does the establishment apply interventions other than interventions mentioned in the previous question?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes, specify	4	16	14.16%
Beefxide	1	11	9.84%
CITRIC ACID	1	3	2.36%
Keeper (Stabilized Sodium chlorite)	1	3	1.08%
Peracetic Acid	1	1	0.88%
No	64	94	82.82%
No response	3	3	3.03%
Total	71	114	100.00%

FabPrimSubprimINT9. Identify which of the following elements the establishment has incorporated into its procedures for each primal and subprimal intervention and whether it applies to each intervention consistently. (Select all that apply) Note: FSIS is gathering data on establishment practices and answer choices are not designed to determine noncompliance. There are no "incorrect" answers. In other words, no single answer choice represents noncompliance.

Intervention- Lactic acid (LAA)	Frequency	Weighted Frequency	Weighted Percentage
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs or other prerequisite program	23	42	37%
Written scientific support documentation	22	43	0.38%
Written monitoring and verification procedures	20	37	32.77%
Written corrective action when critical limits are not met	20	37	32.77%
Records documenting the monitoring of critical limits or parameters	20	37	32.77%
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months)	22	41	36.14%
Intervention not applied consistently	2	2	2.01%
N/A	41	62	54.44%

Intervention- Acetic Acid (AA)	Frequency	Weighted Frequency	Weighted Percentage
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs or other prerequisite program	3	6	5.60%
Written scientific support documentation	3	6	5.65%
Written monitoring and verification procedures	2	4	3.29%
Written corrective action when critical limits are not met	2	4	3.29%
Records documenting the monitoring of critical limits or parameters	2	4	3.29%
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months)	3	6	5.65%
Intervention not applied consistently	-	-	-
N/A	65	104	91.32%

Intervention- Lauramide arginine ethyl ester (LAE)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs or other prerequisite program	-	-	-
Written scientific support documentation	-	-	-
Written monitoring and verification procedures	-	-	-
Written corrective action when critical limits are not met	-	-	-
Records documenting the monitoring of critical limits or parameters	-	-	-
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months)	-	-	-
Intervention not applied consistently	-	-	-
N/A	68	110	96.97%

Intervention- Acidified sodium chloride (ASC)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs or other prerequisite program	6	7	6.46%
Written scientific support documentation	5	6	5.38%
Written monitoring and verification procedures	5	6	5.38%
Written corrective action when critical limits are not met	5	6	5.38%
Records documenting the monitoring of critical limits or parameters	5	6	5.38%
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months)	5	6	5.38%
Intervention not applied consistently	-	-	-
N/A	62	103	90.52%

Intervention- Hypobromous acid	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs or other prerequisite program	-	-	-
Written scientific support documentation	-	-	-
Written monitoring and verification procedures	-	-	-
Written corrective action when critical limits are not met	-	-	-
Records documenting the monitoring of critical limits or parameters	-	-	-
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months)	-	-	-
Intervention not applied consistently	-	-	-
N/A	68	110	96.97%

Intervention- Peroxyacetic acid (PAA)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs or other prerequisite program	27	33	29.24%
Written scientific support documentation	32	38	33.69%
Written monitoring and verification procedures	24	28	24.99%
Written corrective action when critical limits are not met	22	26	23.11%
Records documenting the monitoring of critical limits or parameters	25	29	25.87%
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months)	26	31	26.88%
Intervention not applied consistently	2	2.143589744	1.88%
N/A	33	69	60.31%

Questions Related to Microbiological Sampling and Testing Program for Primals/Subprimals

FabPrimSubprimST1. Does the establishment conduct on-going verification testing (e.g., testing for pathogen, indicator organism, or both) on the primals and subprimals? (Select all that apply)

Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Yes, for all primal or subprimals	13	47	8.81%
Yes, on primals/subprimals that it will use in mechanically tenderized products	8	27	5.10%
Yes, on primals/subprimals that it will grind	22	47	8.92%
Yes, on primals/subprimals that it will send to other establishments for use in raw, non-intact product	21	25	4.69%
Yes, on primals and subprimals that were found positive by FSIS testing	5	6	1.05%
Yes, on primals and subprimals that were found positive by establishment testing	5	6	1.05%
No	155	409	77.37%

FabPrimSubprimST2. Approximately how frequently does the establishment conduct on-going verification testing (e.g., testing for pathogen, indicator organism, or both) on primals or subprimals? *Select the most appropriate way of categorizing the sampling (i.e., per year or per week). Then specify the number of samples per year, e.g., 4, 100, 500 or specify the number of samples per week, e.g., 1, 5, 60.*

FabPrimSubprimST2 -Per year

Frequency	**Response**	**Weighted Response**	**Weighted Percentage**
0	14	41	18.69%
2	1	3	1.21%
4	5	13	6.07%
6	5	13	6.07%
8	1	10	4.44%
24	1	10	4.44%
n/a	1	11	5.07%
Blank	50	119	54.01%

FabPrimSubprimST2 - Per Week

Frequency	Response	Weighted Response	Weighted Percentage
0	5	12	5.34%
4	1	1	0.52%
5	1	1	0.55%
15	1	1	0.55%
Blank	70	206	93.04%

FabPrimSubprimST3. What pathogens are tested as part of ongoing verification testing? (select *all that apply)* If the test screen is positive for STEC or virulence genes, what action does the establishment take?

Pathogens- *Salmonella*	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to confirmation	-	-	-
Divert to cooking	2	12	5.65%
Destroy product	1	10	4.44%
Sell product			
Other	-	-	-
N/A	10	21	9.39%

Pathogens- *E. coli* O157:H7	**Frequency**	**Weighted Frequency**	**Weighted Percentage (of action)**
Proceed to confirmation	3	7	2.98%
Divert to cooking	3	14	6.17%
Destroy product	5	21	9.29%
Sell product	-	-	-
Other	2	5.369458128	2.43%
N/A	2	2	1.04%

Pathogens- non-O157 STEC	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to confirmation	1	1	0.55%
Divert to cooking	3	14	6.17%
Destroy product	-	-	-
Sell product	-	-	-
Other	-	-	-
N/A	9	28	12.76%

Pathogens- Virulence genes (*stx, eae, uidA, spi*)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to confirmation	-	-	-
Divert to cooking	2	12	5.65%
Destroy product	-	-	-
Sell product	-	-	-
Other	-	-	-
N/A	10	29	13.28%

FabPrimSubprimST4. If the establishment tests for other than pathogens or indicators in the previous question, please specify for what the establishment tests.

Response	Frequency	Weighted Frequency
Aerobic Plate Count	1	10

FabPrimSubprimST5. If the test is positive for "Other", what action does the establishment take?

Response	Frequency	Weighted Frequency
For ECH7, proceed to confirmation, or divert to cooking, or destroy product (chart would NOT allow for multiple selections)	1	3
Proceed to confirmation, divert to cooking, or destroy depending on situation (chart would NOT allow for multiple selections)	1	3
n/a	3	6
Blank	73	209

Mechanically Tenderized Beef Products

MechTend1. Does the establishment produce mechanically tenderized products?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	178	925	40.50%
No	299	1355	59.35%
No response	3	3	0.15%
Total	480	2283	100.00%

MechTend2. Please describe the mechanically tenderized products and their intended use. Also indicate if the establishment has controls in place to ensure product is used as intended.

Method- Mechanically tenderized (without solution) products	Frequency	Weighted Frequency	Weighted Percentage
Trim produced from the tenderized product	35	242	26.08%
Trim used in ground beef products at the establishment	21	143	15.39%
Trim used in ground beef products at another establishment	3	23	2.53%
Intended for RTE cooking only at the establishment	6	41	4.46%
Intended for RTE cooking at another establishment	13	72	7.76%
Has controls in place to ensure product is used as intended	27	137	14.78%
N/A	127	601	64.73%

Method- Blade-tenderized products	Frequency	Weighted Frequency	Weighted Percentage
Trim produced from the tenderized product	35	218	23.47%
Trim used in ground beef products at the establishment	26	158	17.01%
Trim used in ground beef products at another establishment	1	11	1.21%
Intended for RTE cooking only at the establishment	6	29	3.09%
Intended for RTE cooking at another establishment	9	49	5.25%
Has controls in place to ensure product is used as intended	48	230	24.81%
N/A	97	521	56.15%
Method- Mechanically tenderized (injected with solution) products	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Trim produced from the tenderized product	12	59	6.40%
Trim used in ground beef products at the establishment	5	35	3.73%
Trim used in ground beef products at another establishment	2	12	1.32%
Intended for RTE cooking only at the establishment	9	55	5.92%
Intended for RTE cooking at another establishment	10	40	4.26%
Has controls in place to ensure product is used as intended	19	116	12.49%
N/A	148	722	77.84%

MechTend3. Does the establishment divert all subprimals and primals used in mechanically tenderized product to RTE cooking only?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	9	39	4.20%
No	169	886	95.43%
No response	3	3	0.37%
Total	181	928	100.00%

MechTend4. Are 100% of the mechanically tenderized products produced from subprimals or primals derived from cattle slaughtered on-site (including sister establishments)? Do not include carcasses from external/outside sources.

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	75	181	19.51%
No	103	744	80.12%
No response	3	3	0.37%
Total	181	928	100.00%

MechTend5. On average, what percentage of primals and subprimals are used to produce mechanically tenderized product from cattle slaughtered on-site (specify percentage, e.g., 0%, 25%, 100%)?

Response	Frequency	Weighted Frequency	Weighted Percentage
<1	16	41	0.23
1	15	35	0.20
2	2	4	0.02
3	1	1	0.01
5	16	38	0.21
10	8	18	0.10
15	1	3	0.01
25	2	5	0.03
30	1	1	0.01
50	1	3	0.01
95	1	3	0.01
100	11	28	0.15

MechTend6. How does the establishment determine that primals or subprimals are suitable for use in mechanically tenderized product? (Select all that apply)

Response	Frequency	Weighted Frequency	Weighted Percentage
The establishment tests bench trim from primals or subprimals it will use in mechanically tenderized product	21	120	12.95%
The establishment tests subprimals or primals it will use in mechanically tenderized product	13	92	9.91%
The establishment applies an intervention to the subprimals or primals it will use in mechanically tenderized product	70	436	46.98%
The establishment requires assurances that subprimals or primals it receives for use in mechanically tenderized product have been tested and found negative for *E. coli* O157:H7	29	191	20.54%
The establishment diverts all subprimals and primals it will use in mechanically tenderized product to RTE cooking only and product is not tested.	8	40	4.26%
Other, specify (Responses not Reported)	89	372	40.04%

MechTend7. Does the establishment use this trim in raw, non-intact products (e.g., ground beef, hamburger, and patties)? (Select all that apply)

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	67	364	39.21%
Yes, at another establishment	2	12	1.33%
No	109	548	59.09%

MechTend8. Does the establishment apply an intervention to the primals/subprimals the establishment will use to produce mechanically tenderized products?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	78	465	50.11%
No	100	460	49.52%
No response	3	3	0.37%
Total	181	928	100.00%

MechTend9. Which interventions does the establishment apply? If the establishment implements any of the following interventions on mechanically tenderized beef, when do they implement the intervention? (Select all that apply)

Intervention	Interventions applied throughout the year			Varies by suppliers (i.e., purchase specifications)			N/A		
	Frequency	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	32	193	20.74%	0	0	0.00%	1	1	0.13%
Acetic Acid (AA)	3	15	1.61%	0	0	0.00%	1	3	0.29%
Lauramide arginine ethyl ester (LAE)	1	11	1.21%	0	0	0.00%	0	0	0.00%
Acidified sodium chloride (ASC)	16	90	9.75%	0	0	0.00%	0	0	0.00%
Hypobromous acid	0	0	0.00%	0	0	0.00%	0	0	0.00%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	21	104	11.23%	0	0	0.00%	0	0	0.00%

MechTend10. Does the establishment apply interventions other than interventions mentioned in the previous question?

	Frequency	Weighted Frequency	Weighted Percentage
Yes, specify (Responses not reported)	11	68.	7.35%
No	67	397	42.76%
No response	103	463	49.89%
Total	181	928	100.00%

MechTend11. Identify which of the following elements the establishment has incorporated into its procedures for each mechanically tenderized beef intervention and whether it applies to each intervention consistently. (Select all that apply) Note: FSIS is gathering data on establishment practices and answer choices are not designed to determine noncompliance. There are no "incorrect" answers. In other words, no single answer choice represents noncompliance.

Interventions- Lactic acid (LAA)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program	30	182	19.58%
Written scientific support documentation	29	163	17.58%
Written monitoring and verification procedures	28	159	17.14%
Written corrective action when critical limits are not met	18	101	10.92%
Records documenting the monitoring of critical limits or parameters	29	170	18.35%
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months	28	161	17.30%
Intervention Not applied consistently	1	10	1.06%
N/A	45	271	29.24%

Interventions- Acetic Acid (AA)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program	2	14	1.50%
Written scientific support documentation	3	15	1.61%
Written monitoring and verification procedures	2	4	0.40%
Written corrective action when critical limits are not met	1	1	0.11%
Records documenting the monitoring of critical limits or parameters	2	4	0.40%
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months	3	6	0.69%
Intervention Not applied consistently	-	-	-
N/A	74	447	48.21%

Interventions- Lauramide arginine ethyl ester (LAE)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program	1	11	1.21%
Written scientific support documentation	1	11	1.21%
Written monitoring and verification procedures	1	11	1.21%
Written corrective action when critical limits are not met	-	-	-
Records documenting the monitoring of critical limits or parameters	1	11	1.21%
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months	1	11	1.21%
Intervention Not applied consistently	-	-	-
N/A	77	454	48.90%

Interventions- Acidified sodium chloride (ASC)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program	14	88	9.52%
Written scientific support documentation	15	89	9.63%
Written monitoring and verification procedures	15	89	9.63%
Written corrective action when critical limits are not met	13	76	8.14%
Records documenting the monitoring of critical limits or parameters	15	89	9.63%
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months	14	80	8.58%
Intervention Not applied consistently	2	12	1.32%
N/A	62	375	40.37%

Interventions- Hypobromous acid	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program	-	-	-
Written scientific support documentation	-	-	-
Written monitoring and verification procedures	-	-	-
Written corrective action when critical limits are not met	-	-	-
Records documenting the monitoring of critical limits or parameters	-	-	-
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months	-	-	-
Intervention Not applied consistently	78	465	50.11%
N/A			

Interventions- Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program	19	93	10.05%
Written scientific support documentation	19	93	10.05%
Written monitoring and verification procedures	17	90	9.65%
Written corrective action when critical limits are not met	14	69	7.42%
Records documenting the monitoring of critical limits or parameters	17	82	8.88%
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months	14	86	9.30%
Intervention Not applied consistently	3	3	0.34%
N/A	58	371	39.94%

MechTend12. What sanitation measures does the establishment have in place to ensure that the process is conducted in a sanitary manner? (Select all that apply)

Sanitation Measures	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Daily needle removal and soaking in sanitation solution	35	219	23.65%
Clean-in-place (CIP) system followed by sanitizing	13	55	5.93%
Written procedures describing the chemical concentration and frequency of sanitation	56	304	32.74%
Sampling needles to verify sanitation measures	14	77	8.34%
Purchase specifications for ingredients used in solutions	24	126	13.59%
Maximum age for reuse brine, with a mandatory break in the use cycle	8	35	3.73%
Antimicrobial intervention (e.g., filtration, UV) for recirculating brine	2	11	1.17%
Use of bacteriostatic agents (e.g., lactate, diacetate, sodium metasilicate) in brine	3	21	2.23%
Established protocol for managing rework, including traceability and timeframe for incorporation into manufacturing	17	98	10.59%
Tenderizing/injecting the product from the side opposite of the external surface to minimize any bacterial translocation	9	81	8.72%
Other, specify (Responses not reported)	17	99	10.63%

Mechanically Tenderized Beef Products Samples

MechTendST1. Does the establishment sample subprimals or primals it uses in mechanically tenderized products?

Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Yes	35	238	25.62%
No	143	687	74.01%
No response	3	3	0.37%
Total	181	928	100.00%

MechTendST2. What sampling method does the establishment use? (Select all that apply.)

Sampling Method	Select the sampling method			60 slices			Knife			N/A		
	Frequency	**Weighted Frequency**	**Weighted Percentage (for this method)**	**Frequency**	**Weighted Frequency**	**Weighted Percentage (for this method)**	**Frequency**	**Weighted Frequency**	**Weighted Percentage (for this method)**	**Frequency**	**Weighted Frequency**	**Weighted Percentage (for this method)**
Surface excision (similar to FSIS N-60 method)	9	54	22.42%	9	68	28.33%	10	81	33.55%	7	34	14.28%
Surface excision (N-75 method)	-	-	-	-	-	-	1	11	4.65%	34	227	93.93%
IEH N-60	-	-	-	-	-	-	1	10	4.07%			
IEH N-60 Plus sampling)	-	-	-	-	-	-	-	-	-	35	238	98.57%
Other Core Sampling	-	-	-	1	3	1.11%	-	-	-	33	225	93.39%
Other automated method	-	-	-	-	-	-	-	-	-	35	238	98.57%

MechTendST3. (Answer this question ONLY if you selected any of the options, except N/A for "Surface excision (N-60)" and "Surface excision (N-75)" in question MechTendS2) What is the size of individual pieces of samples? Specify dimensions (width, length, and thickness) in inches.

Measurements	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
0.5x4.5x0.125	1	3	1.11%
0.5x4x0.125	1	10	4.07%
0x0x0	3	22	9.25%
1x1x0.5	1	10	4.07%
1x3x0.125	9	71	29.48%
1x3x0.2	1	3	1.11%
1x3x0.5	1	3	1.11%
2x1x0.2	1	11	4.65%
2x4x0.125	2	14	5.76%
2x4x0.5	1	11	4.65%
2x4x1	1	10	4.07%
2x6x0.25	1	3	1.11%
(blank)	9	27	11.06%
Grand Total	38	241	100.00%

MechTendST4. (Answer this question ONLY if you select any of the options for "Other core sampling" and "Other automated method" in question MechTendST2) What other core sampling or automated method is used for sample collection?

Sample Collection Method	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
One surface slice at one time	1	10	4.07%
Test a tenderized balltip 3 times quarterly	1	3	1.11%
Blank	36	229	94.82%
Grand Total	38	241	100.00%

MechTendST5. Approximately, how long does it take the establishment to collect a sample?

Surface excision (similar to FSIS N-60 method)	Frequency	Weighted Frequency	Weighted Percentage
15 minutes or less	6	46	19.08%
30 minutes	11	84	34.66%
45 minutes	1	10	4.07%
1 hour	4	26	10.94%
1 hour 15 minutes	-	-	-
1 hour 30 minutes	-	-	-
1 hour 45 minutes	-	-	-
2 hours	-	-	-
More than 2 hours	5	36	15.01%
N/A	8	36	14.81%
Other Core Sampling			
15 minutes or less	2	12	5.18%
N/A	33	225	93.39%

MechTendST6. What is the target weight of the sample analyzed by the laboratory? Specify in grams (e.g., 325 grams, 375 grams).

Target Weight	Frequency	Weighted Frequency	Weighted Percentage
65	1	11	4.65%
325	8	67	27.79%
375	24	147	60.95%
454	1	10	4.07%
900	1	3	1.11%
No response	3	3	1.43%
Total	38	241	100.00%

TST7. How are trim samples collected?

Method	Frequency	Weighted Frequency	Weighted Percentage
Distributed over space (i.e., from multiple bins or boxes) (answer next question)	23	183	75.77%
Distributed over time (i.e., samples collected at fixed intervals across production time)	10	35	14.66%
Blank	5	23	9.56%
Grand Total	38	241	100.00%

MechTendST8. How does the establishment take samples?

Method	Frequency	Weighted Frequency	Weighted Percentage
From the top of the bin or box only	6	53	22.03%
Throughout the bin or box	27	172	71.36%
Blank	5	16	6.61%
Grand Total	38	241	100.00%

MechTendST9. What pathogens are tested by the establishment as part of on-going verification testing? *(Select all that apply)*

Pathogens	Frequency	Weighted Frequency	Weighted Percentage
E. coli O157:H7	35	238	98.57%
Salmonella	2	20	8.14%
non-O157 STEC	-	-	-
Virulence genes (*stx, eae, uidA, spi*)	-	-	-
Other, specify	2	12	5.18%
Aerobic Plate Count	1	10	4.07%
generic *E. coli*	1	3	1.11%

MechTendST10. Approximately, how frequently does the establishment sample primals or subprimals it will use in mechanically tenderized product? *Select the most appropriate way of categorizing trim sampling (i.e., per year or per week). Then specify the number of trim per year, e.g., 4, 100, 500 or specify the number of trim samples per week, e.g., 1, 5, 60.*

	Frequency	Weighted Frequency	Weighted Percentage
Per week, specify	3	25	10.41%
Per year, specify	32	213	88.17%
No response	3	3	1.43%
Total	38	241	100.00%

Per year Specification	Frequency	Weighted Frequency	Weighted Percentage
2	1	3	1.11%
4	12	71	29.29%
6	10	58	24.11%
8	1	10	4.07%
9	1	10	4.07%
12	2	12	5.18%
18	1	10	4.07%
19	1	10	4.07%
24	1	10	4.07%
52	1	10	4.07%
2 per year, 4 per year	1	10	4.07%
Blank	6	29	11.83%
Grand Total	38	241	100.00%

Per Week Specification	Frequency	Weighted Frequency	Weighted Percentage
1	1	3	1.11%
2	1	11	4.65%
60	1	11	4.65%

Beef Trimmings Question Series

TrimINT1. Does the establishment produce beef trimmings (including beef manufacturing trimmings and bench trim)?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	299	1275	55.85%
No	178	1005	44.00%
No response	3	3	0.15%
Total	480	2283	100.00%

TrimINT2. Does the establishment identify the intended use of the trimmings?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	238	1041	81.46%
No	61	234	18.27%
No response	3	3	0.27%
Total	302	1278	100.00%

TrimINT3. Identify the intended use for trimmings and any controls the establishment has in place to ensure the trimmings are used as intended.

Intended use - Raw, non-intact use (e.g., ground beef, hamburger, or patties) at the establishment	Frequency	Weighted Frequency	Weighted Percentage
Est. maintains records showing that the official establishment receiving the raw product processes all of the product into RTE product, such as a copy of HACCP records showing the product meets a lethality CCP matched with bills of lading with	9	20	1.87%
Est. receives letters of guarantee showing that all product from a particular product class is further processed into RTE product and maintains on-going communication with the receiving establishment to verify that all its product is being processed as RTE	5	25	2.36%
Est. has a contractual agreement with the receiving establishment so the producing establishment has knowledge of the receiving establishment's production process	21	63	6.03%
Other	82	415	39.75%
N/A	121	519	49.65%
Blank	3	3	0.33%

Intended use - Raw, non-intact use (e.g., ground beef, hamburger, or patties) at another establishment	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Est. maintains records showing that the official establishment receiving the raw product processes all of the product into RTE product, such as a copy of HACCP records showing the product meets a lethality CCP matched with bills of lading with	7	10	0.91%
Est. receives letters of guarantee showing that all product from a particular product class is further processed into RTE product and maintains on-going communication with the receiving establishment to verify that all its product is being processed as RTE	5	7	0.68%
Est. has a contractual agreement with the receiving establishment so the producing establishment has knowledge of the receiving establishment's production process	20	51	4.90%
Other	16	33	3.11%
N/A	190	941	90.07%
Blank	3	3	0.33%

Intended use - Raw, intact use at the establishment	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Est. maintains records showing that the official establishment receiving the raw product processes all of the product into RTE product, such as a copy of HACCP records showing the product meets a lethality CCP matched with bills of lading with	8	22	2.15%
Est. receives letters of guarantee showing that all product from a particular product class is further processed into RTE product and maintains on-going communication with the receiving establishment to verify that all its product is being processed as RTE	1	3	0.26%
Est. has a contractual agreement with the receiving establishment so the producing establishment has knowledge of the receiving establishment's production process	11	27	2.54%
Other	17	73	7.02%
N/A	201	916	87.70%
Blank	3	3	0.33%

Intended use - Raw, intact use at another establishment	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Est. maintains records showing that the official establishment receiving the raw product processes all of the product into RTE product, such as a copy of HACCP records showing the product meets a lethality CCP matched with bills of lading with	1	1	0.12%
Est. receives letters of guarantee showing that all product from a particular product class is further processed into RTE product and maintains on-going communication with the receiving establishment to verify that all its product is being processed as RTE	2	2	0.21%
Est. has a contractual agreement with the receiving establishment so the producing establishment has knowledge of the receiving establishment's production process	10	40	3.84%
Other	10	14	1.36%
N/A	215	984	94.15%
Blank	3	3	0.33%

Intended use - RTE product at the establishment	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Est. maintains records showing that the official establishment receiving the raw product processes all of the product into RTE product, such as a copy of HACCP records showing the product meets a lethality CCP matched with bills of lading with	18	85	8.10%
Est. receives letters of guarantee showing that all product from a particular product class is further processed into RTE product and maintains on-going communication with the receiving establishment to verify that all its product is being processed as RTE	1	3	0.26%
Est. has a contractual agreement with the receiving establishment so the producing establishment has knowledge of the receiving establishment's production process	2	2	0.21%
Other	28	102	9.74%
N/A	189	850	81.37%
Blank	3	3	0.33%

Intended use - RTE product at another establishment	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Est. maintains records showing that the official establishment receiving the raw product processes all of the product into RTE product, such as a copy of HACCP records showing the product meets a lethality CCP matched with bills of lading with	14	53	5.07%
Est. receives letters of guarantee showing that all product from a particular product class is further processed into RTE product and maintains on-going communication with the receiving establishment to verify that all its product is being processed as RTE	25	126	12.07%
Est. has a contractual agreement with the receiving establishment so the producing establishment has knowledge of the receiving establishment's production process	21	71	6.79%
Other	12	36	3.49%
N/A	166	755	72.25%
Blank	3	3	0.33%

TrimINT4. Please identify any other trimmings and their intended use below.

Responses not reported.

TrimINT5. Does the establishment apply any interventions to beef trimmings?

Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Yes	65	232	22.19%
No	173	810	77.48%
No response	3	3	0.33%
Total	241	1045	100.00%

TrimINT6. Which interventions does the establishment apply to beef trimmings? If the establishment implements any of the following interventions to beef trimmings, when do they implement the intervention? (Select all that apply)

Intervention	Interventions applied throughout the year			Varies by suppliers (i.e., purchase specifications)			N/A		
	Frequency	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	24	69	29.40%	1	1	0.52%	40	161	68.61%
Acetic Acid (AA)	1	1	0.45%				64	231	98.08%
Lauramide arginine ethyl ester (LAE)	1	10	4.17%	-	-	-	64	222	94.36%
Acidified sodium chloride (ASC)	8	50	21.17%	2	2	1.04%	55	180	76.33%
Hypobromous acid				1	1	0.46%	64	231	98.08%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	26	55	23.22%	1	3	1.14%	38	174	74.17%

TrimINT7. Does the establishment apply interventions other than interventions mentioned in the previous question?

Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Yes, specify (Responses not reported)	6	56	23.67%
No	59	176	74.87%
No response	3	3	1.46%
Total	68	235	100.00%

Specification	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
2.5% Citric Acid	1	11	4.76%
Beefxide	1	11	4.76%
Beefxide, lactic acid (45-60%), citric acid (20-35%), and potassium hydroxide (>1%).	1	11	4.76%
CITRILOW (Citric acid with Hydrochloric acid)	1	10	4.17%
Mixture of citric, ascorbic & erythorbic acid @ 5.9%	1	11	4.76%
Sodium Metasilicate (SMS)	1	1	0.44%

TrimINT8. Identify which of the following elements the establishment has incorporated into its procedures for each beef trimmings intervention and whether it applies to each intervention consistently. (Select all that apply)

Intervention - Lactic acid (LAA)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program	24	79	33.74%
Written scientific support documentation	23	78	33.12%
Written monitoring and verification procedures	22	75	32.08%
Written corrective action when critical limits are not met	19	55	23.28%
Records documenting the monitoring of critical limits or parameters	22	67	28.46%
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months	22	75	32.05%
Intervention Not applied consistently	2	2	0.97%
N/A	39	150	63.85%

Intervention - Acetic Acid (AA)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program	1	1	0.45%
Written scientific support documentation	1	1	0.45%
Written monitoring and verification procedures	1	1	0.45%
Written corrective action when critical limits are not met	1	1	0.45%
Records documenting the monitoring of critical limits or parameters	1	1	0.45%
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months	1	1	0.45%
Intervention Not applied consistently	-	-	-
N/A	64	231	98.08%

Intervention - Lauramide arginine ethyl ester (LAE)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program	-	-	-
Written scientific support documentation	-	-	-
Written monitoring and verification procedures	1	10	4.17%
Written corrective action when critical limits are not met	-	-	-
Records documenting the monitoring of critical limits or parameters	-	-	-
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months	1	10	4.17%
Intervention Not applied consistently	-	-	-
N/A	64	222	94.36%

Intervention - Acidified sodium chloride (ASC)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program	10	52	22.21%
Written scientific support documentation	9	51	21.69%
Written monitoring and verification procedures	8	50	21.17%
Written corrective action when critical limits are not met	7	29	12.16%
Records documenting the monitoring of critical limits or parameters	9	51	21.69%
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months	8	50	21.17%
Intervention Not applied consistently	1	1	0.52%
N/A	55	180	76.33%

Intervention - Hypobromous acid	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program	1	1	0.46%
Written scientific support documentation	1	1	0.46%
Written monitoring and verification procedures	1	1	0.46%
Written corrective action when critical limits are not met	-	-	-
Records documenting the monitoring of critical limits or parameters	1	1	0.46%
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months	1	1	0.46%
Intervention Not applied consistently	-	-	-
N/A	64	231	98.08%

Intervention - Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program	18	39	16.62%
Written scientific support documentation	24	45	19.23%
Written monitoring and verification procedures	19	47	20.08%
Written corrective action when critical limits are not met	17	36	15.45%
Records documenting the monitoring of critical limits or parameters	21	42	17.91%
Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months	21	51	21.67%
Intervention Not applied consistently	3	5	2.05%
N/A	38	174	74.17%

Trim Lot Definitions

TrimLot1. How does the establishment define a lot of trim? *(select all that apply)*

Lot	# of units per lot of components			Production date			Production shift			Time		
	Frequency	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Combo bins	46	58	4.53%	66	219	17.15%	5	26	2.03%	11	50	3.95%
Boxes	31	60	4.67%	141	807	63.13%	5	9	0.70%	11	65	5.08%
Components from carcasses	23	48	3.73%	91	278	21.72%	5	10	0.81%	13	44	3.46%

TrimLot2. Please identify other lot definitions not included in the previous question. (If this question is not applicable to you, please put N/A in the box.)

Responses not reported.

TrimLot3. For trim, does the establishment "split" lots during further production? (By split lots, we mean the establishment uses a single lot, which has been subjected to microbiological testing as source material for multiple production lots of finished product.)

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	41	205	16.01%
No	258	1070	83.72%
No response	3	3	0.27%
Total	302	1278	100.00%

TrimLot4. For trim, does the establishment have a robust, statistically based sampling plan in which every lot is sampled?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	81	218	17.04%
No	218	1057	82.69%
No response	3	3	0.27%
Total	302	1278	100.00%

TrimLot5. Trim from approximately how many carcasses go into a combo bin (2,000 lbs.) (Specify the number of carcasses, e.g., 1, 5, 20, 100)?

Response	Frequency	Weighted Frequency	Weighted Percentage
Number of carcasses, specify	62	189	14.81%
0	12	99	7.74%
1-10	34	62	4.88%
11-20	2	2	0.17%
21-50	10	11	0.88%
51+	3	3	0.26%
N/A	4	35	2.73%
Cannot determine based on available records or my observations	237	1086	84.92%
No response	3	3	0.27%
Total	302	1278	100.00%

Beef Trim Sampling Question Series

TST1. Does the establishment sample trim?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	120	388	30.32%
No	179	887	69.41%
No response	3	3	0.27%
Total	302	1278	100.00%

TST2. What is the trim sampling method?

Response	Frequency	Weighted Frequency	Weighted Percentage
IEH Advanced Pathogen Testing and Carcass Certification Program	1	1	0.28%
Other, specify (Responses not reported)	10	59	15.13%
Surface excision (automated method, i.e. IEH N-60 Plus, or Core sampling)	23	38	9.67%
Surface excision (FSIS N-60 method)	77	278	71.17%
Surface excision (N-75 method)	8	9	2.19%
Surface wash (automated method, e.g., spray vacuum method (M-Vac)	1	3	0.69%
Blank	3	3	0.88%
Grand Total	123	391	100.00%

TST3. How are surface excision samples collected? (Select all that apply)

Method - Surface excision (similar to FSIS N-60 method)	Frequency	Weighted Frequency	Weighted Percentage
60 slices	77	274	70.84%
75 slices	3	3	0.81%
Knife	44	123	31.86%
Scalpel	2	2	0.58%
Scissors	1	1	0.26%
N/A	34	99	25.54%

Method - Surface excision (N-75 method)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
60 slices	1	1	0.28%
75 slices	8	9	2.20%
Knife	6	6	1.66%
Scalpel	3	3	0.82%
Scissors	-	-	-
N/A	109	374	96.63%

Method - IEH N-60	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
60 slices	3	5	1.33%
75 slices	-	-	-
Knife	-	-	-
Scalpel	-	-	-
Scissors	-	-	-
N/A	115	379	97.79%

Method - IEH N-60 Plus sampling	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
60 slices	15	17	4.49%
75 slices	2	4	0.95%
Knife	2	2	0.57%
Scalpel	-	-	-
Scissors	-	-	-
N/A	99	361	93.09%

Method - Other Core Sampling	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
60 slices	1	11	2.89%
75 slices	1	1	0.28%
Knife	2	21	5.43%
Scalpel	-	-	-
Scissors	-	-	-
N/A	114	351	90.51%

Method - Other automated method (i.e. answer to MechTendST4)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
60 slices	-	-	-
75 slices	-	-	-
Knife	-	-	-
Scalpel	-	-	-
Scissors	-	-	-
N/A	118	384	99.11%

TST4. Approximately, how long does it take the establishment to collect a sample (e.g., all 60 pieces if the establishment uses N-60 method)?

Method- Automated method e.g., spray vacuum method	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
15 minutes or less	-	-	-
30 minutes	-	-	-
45 minutes	-	-	-
1 hour	-	-	-
1 hour 15 minutes	-	-	-
1 hour 30 minutes	-	-	-
1 hour 45 minutes	-	-	-
2 hours	-	-	-
More than 2 hours	-	-	-
N/A	114	339	87.54%

Method- Surface excision (similar to FSIS N-60 method)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
15 minutes or less	38	100	25.89%
30 minutes	22	82	21.15%
45 minutes	4	14	3.72%
1 hour	9	36.89477086	9.52%
1 hour 15 minutes	1	1	0.30%
1 hour 30 minutes	1	1.225	0.32%
1 hour 45 minutes	-	-	-
2 hours	1	10	2.53%
More than 2 hours	6	37	9.58%
N/A	35	90	23.21%

Method- Surface excision (N-75 method)	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
15 minutes or less	4	4	1.15%
30 minutes	4	4	1.05%
45 minutes	1	1	0.27%
1 hour	-	-	-
1 hour 15 minutes	-	-	-
1 hour 30 minutes	-	-	-
1 hour 45 minutes	-	-	-
2 hours	-	-	-
More than 2 hours	-	-	-
N/A	106	341	87.96%

Method- IEH N-60	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
15 minutes or less	3	5	1.29%
30 minutes	-	-	-
45 minutes	-	-	-
1 hour	-	-	-
1 hour 15 minutes	-	-	-
1 hour 30 minutes	-	-	-
1 hour 45 minutes	-	-	-
2 hours	-	-	-
More than 2 hours	-	-	-
N/A	112	345	89.14%

Method- IEH N-60 Plus sampling	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
15 minutes or less	21	26	6.65%
30 minutes	1	1	0.26%
45 minutes	-	-	-
1 hour	-	-	-
1 hour 15 minutes	-	-	-
1 hour 30 minutes	-	-	-
1 hour 45 minutes	-	-	-
2 hours	-	-	-
More than 2 hours	-	-	-
N/A	93	324	83.52%

Method- Other Core Sampling	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
15 minutes or less	1	10	2.53%
30 minutes	3	23	6.06%
45 minutes	-	-	-
1 hour	-	-	-
1 hour 15 minutes	-	-	-
1 hour 30 minutes	-	-	-
1 hour 45 minutes	-	-	-
2 hours	-	-	-
More than 2 hours	1	1	0.28%
N/A	111	327	84.45%

TST5. What is the size of individual pieces of trim samples? Specify dimensions (width, length, and thickness) in inches.

Responses not reported.

TST6. What is the target weight of the trim sample analyzed by the laboratory? Specify in grams (e.g., 325 grams, 375 grams).

	Frequency	Weighted Frequency	Weighted Percentage
15	1	1	0.28%
25	1	1	0.30%
150	3	3	0.89%
160	1	1	0.32%
165	1	1	0.32%
220	1	1	0.32%
325	10	71	18.26%
350	1	3	0.69%
375	86	244	63.05%
453	1	10	2.53%
454	3	14	3.50%
500	1	1	0.28%
900	2	5	1.39%
907	1	1	0.32%
989	1	11	2.89%
No response	7	18	4.67%
Grand Total	121	387	100.00%

TST7. How are trim samples collected? (Skip to TST9)

Response	Frequency	Weighted Frequency	Weighted Percentage
Distributed over space (i.e., from multiple bins or boxes)	87	274	69.99%
Distributed over time (i.e., samples collected at fixed intervals across production time)	33	114	29.13%
No response	3	3	0.88%
Grand Total	123	391	100.00%

TST8. Does the establishment take sample slices throughout the bin or box or does the establishment take samples only from the top of the bin or box?

Response	Frequency	Weighted Frequency	Weighted Percentage
From the top of the bin or box only	31	102	36.81%
Throughout the bin or box	56	172	61.95%
No response	3	3	1.24%
Grand Total	90	277	100.00%

TST9. On average, what percentage of trim samples is from cattle slaughtered on-site *(specify percentage, e.g. 25%, 50%, 100%)*?

Response	Frequency	Weighted Frequency	Weighted Percentage
0	28	250	63.80%
25	1	3	0.69%
50	3	7	1.67%
70	1	1	0.28%
75	1	1	0.29%
95	1	3	0.69%
99	2	2	0.59%
100	83	122	31.13%
No response	3	3	0.88%
Total	123	391	100.00%

TST10. Does the establishment receive trim through a broker?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	15	106	27.01%
No	105	282	72.11%
No Response	3	3	0.88%
Total	123	391	100.00%

TST11. For trim samples from external/outside sources, does the establishment communicate results to its supplier?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	19	87	22.15%
No	101	301	76.97%
No response	3	3	0.88%
Total	123	391	100.00%

TrimST12. What pathogens are tested as part of on-going verification testing? For each pathogen tested on trimmings and bench trim, which type of laboratory does the establishment use for analysis?

Responses	Trimmings (in-house source materials)			Bench Trim (purchased source materials)			Both		
	Frequency	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
generic *E. coli*	18	41	10.46%	1	1	0.31%	13	55	14.14%
Enterobacteriaciae	3	4	0.90%	1	1	0.31%	12	42	10.85%
APC	13	34	8.63%	1	1	0.31%	15	56	14.37%
E. coli O157:H7	93	228	58.33%	5	26	6.66%	19	121	31.06%
Non-O157 STEC	36	60	15.31%	2	12	3.20%	13	54	13.80%
Virulence genes (*stx, eae, uidA, spi*)	5	7	1.81%	1	1	0.27%	14	45	11.41%
Salmonella	17	40	10.18%				14	46	11.81%
Total coliform count	9	10	2.66%	1	1	0.31%	15	58	14.73%

TrimST13. For each pathogen tested, which type of laboratory does the establishment use for analysis? (Select all that apply)

Pathogens	In-house Lab			Contract Lab		
	Frequency	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
generic *E. coli*	8	17	4.31%	15	52	13.21%
Enterobacteriaciae	1	1	0.29%	4	5	1.18%
APC	6	10	2.57%	13	32	8.23%
E. coli O157:H7	13	27	6.98%	104	340	86.86%
Non-O157 STEC	8	20	5.22%	33	48	12.26%
Virulence genes (*stx, eae, uidA, spi*)	3	5	1.25%	6	6	1.60%
Salmonella	4	9	2.35%	19	40	10.27%
Total coliform count	4	8	1.98%	11	23	5.84%

TrimST14. Approximately, how frequently does the establishment sample trim? *Select the most appropriate way of categorizing trim sampling (i.e., per year or per week). Then specify the number of trim samples per year, e.g., 4, 100, 500 or specify the number of trim samples per week, e.g., 1, 5, 60.*

Response	Frequency	Weighted Frequency	Weighted Percentage
Per week, specify	70	137	35.10%
1-10	20	68	17.42%
11-100	12	27	6.95%
101-499	12	14	3.57%
500-999	17	19	4.81%
1000+	9	9	2.36%
Per year, specify	47	238	60.88%
1-10	25	154	39.33%
11-100	14	67	17.05%
101-999	1	1	0.27%
1,000-9,999	2	2	0.51%
10,000+	4	5	1.21%
Other	1	10	2.51%
Blank	6	16	4.02%
Grand Total	123	391	100.00%

TrimST15. If the screen test is positive, or if the test is confirmed positive for STEC for STEC or virulence genes, what action does the establishment take? *(Select all that apply)*

Action Establishment Takes	Screen positive for STEC			Confirm positive for STEC			N/A		
	Frequency	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to confirmation	28	59	15.01%	15	39	9.92%	77	290	74.20%
Divert to cooking	42	107	27.37%	41	104	26.71%	37	176	45.05%
Destroy product	34	80	20.45%	34	85	21.68%	52	223	56.99%
Sell product	7	16	4.11%	12	23	5.84%	101	349	89.17%

TrimST16. Does the establishment take action in a way not listed in the previous question?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes, specify (Responses not reported)	9	30	7.70%
No	111	358	91.42%
No response	3	3	0.88%
Total	123	391	100.00%

TrimST17. If the trim test is positive for *Salmonella or "other"*, what action does the establishment take?

Action Establishment Takes	Positive test for *Salmonella*			Positive test for Other			N/A		
	Frequency	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to serotyping	4	6	1.57%	1	3	0.69%	115	379	96.86%
Proceed to confirmation	7	11	2.80%	1	1	0.28%	112	376	96.04%
Divert to cooking	11	16	3.98%	4	13	3.37%	105	359	91.77%
Destroy product	7	30	7.63%	3	3	0.86%	110	354	90.62%
Sell product	4	5	1.25%	1	1	0.28%	115	382	97.59%

TrimST18. Does the establishment take action in a way not listed in the previous question?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes, specify (Responses not reported)	6	27	6.86%
No	114	361	92.26%
No response	3	3	0.88%
Total	123	391	100.00%

TrimST19. Does the establishment use microbiological data from its trim sampling program to verify the effectiveness of its sanitary dressing procedures?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	64	102	26.13%
No	56	285	72.99%
No response	3	3	0.88%
Total	123	391	100.00%

TrimST20. Has the establishment identified process control criteria in its trim sampling program?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	46	69	65.76%
No	18	33	30.97%
No response	3	3	3.26%
Total	67	106	100.00%

TrimST21. Does the written program address corrective actions the establishment will take when the program is out of control?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	47	70	66.71%
No	17	32	30.03%
No response	3	3	3.26%
Total	67	106	100.00%

TrimST22. Does the establishment perform verification activities to validate its corrective actions in bringing an out-of-control process back under control?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	45	66	62.94%
No	19	36	33.80%
No response	3	3	3.26%
Total	67	106	100.00%

TrimST23. What verification activities does the establishment perform to prove that their corrective actions bring an out-of-control process back under control?

Response	Frequency	Weighted Frequency	Weighted Percentage
Both	36	56	80.71%
Microbiological sampling	4	5	6.57%
Visual observation	5	5	7.79%
No response	3	3	4.93%
Total	48	70	100.00%

TrimST24. Does the establishment define criteria to determine when its corrective actions bring the process back under control?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	39	58	83.35%
No	6	8	11.73%
No response	3	3	4.93%
Total	48	70	100.00%

High Event Period

HEP1. Has the establishment defined what constitutes a high event period (a period of time in which the number of STEC organisms (e.g., *E. coli* O157:H7 positives) or associated virulence markers exceeds its predetermined criteria indicating that there has been a loss of process control)? (Select all that apply)

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes, the establishment has the defined criteria for a localized HEP	47	62	15.98%
Yes, the establishment has the defined criteria for a systemic HEP	44	71	18.13%
No	66	297	75.98%
Grand Total	123	391	100.00%

HEP2. (Answer this question ONLY if option 1 in question HEP1 is selected) For what timeframe does the establishment apply the localized high event period?

Response	Frequency	Weighted Frequency	Weighted Percentage
10-consecutive sample window	12	14	21.85%
Less than a shift	2	2	3.56%
Other, specify (Responses not reported)	8	17	27.15%
Production day	20	24	38.85%
Production shift	5	5	8.60%
Grand Total	47	62	100.00%

HEP3. How does the establishment define a localized high event period? (select all that apply)

Response	Frequency	Weighted Frequency	Weighted Percentage
Statistically derived criteria	14	33	8.36%
Specific percent positive	14	17	4.45%
Specific number of positive results	32	47	12.04%

HEP4. (Answer this question ONLY if option 1 is selected in question HEP3) What is the target percentage for the localized HEP? (specify percentage, e.g., 1.5%, 5%, 10%)?

Response	Frequency	Weighted Frequency	Weighted Percentage
1.5	1	1	3.75%
5	8	9	26.54%
11.87	2	2	6.36%
14.5	1	1	3.30%
50	1	10	30.03%
60	1	10	30.03%
Total	14	33	100.00%

HEP5. (Answer this question ONLY if option 1 is selected in question HEP3) What is the degree of confidence for the statistically derived localized HEP criteria? (specify %, e.g., 90%, 95%, 99.5%)

Response	Frequency	Weighted Frequency	Weighted Percentage
90	1	10	30.03%
95	8	9	26.54%
99	3	3	9.65%
99.5	1	10	30.03%
No response	1	1	3.75%
Total	14	33	100.00%

HEP6. (Answer this question ONLY if option 2 is selected in question HEP3) What is the specific percent positive that the establishment uses to define localized HEP criteria (specify percent positive, e.g., 1%, 2.5%, 5)?

Response	Frequency	Weighted Frequency	Weighted Percentage
3.5	1	1	6.56%
5	10	11	65.23%
10	3	5	28.20%
Total	14	17	100.00%

HEP7. (Answer this question ONLY if option 3 is selected in question HEP3) What is the number of positive results that the establishment uses to define a localized HEP (specify number of positive results, e.g., 1, 2, 5)?

Response	Frequency	Weighted Frequency	Weighted Percentage
2	2	2	12.78%
3	1	1	6.19%
No response	11	14	81.03%
Total	14	17	100.00%

HEP8. When a localized high event period occurs, which of the following actions does the establishment take? *(Select all that apply)*

Response	Frequency	Weighted Frequency	Weighted Percentage
Diverts all trimming produced during the high event period to cooking regardless of test result	33	45	11.49%
Applies an intervention to primals/subprimals produced during the high event period	17	29	7.31%
Tests subprimals/primals produced during the high event period for *E. coli* O157:H7 or other STEC	18	30	7.74%
Diverts subprimals/primals produced during the high event period to cooking	14	15	3.80%
Reduces its lot size (e.g., from 5-combo lots to one-combo lots) to increase its confidence that it is not producing adulterated products	3	4	0.92%
Tests food-contact surfaces for *E. coli* O157:H7 or other STEC	2	2	0.59%
Other, specify (Responses not reported)	18	32	8.18%
None	2	2	0.53%

HEP9. What timeframe does the establishment apply the systemic high event period?

Response	Frequency	Weighted Frequency	Weighted Percentage
10-consecutive sample window	1	1	0.31%
30-consecutive sample window	8	9	2.33%
Less than a shift	3	3	0.79%
Other, specify (Responses not reported)	9	28	7.28%
Production day	23	38	9.67%
Production shift	8	9	2.22%
Blank	71	303	77.39%
Grand Total	123	391	100.00%

HEP10. How does the establishment define a systemic high event period? (select all that apply)

Response	Frequency	Weighted Frequency	Weighted Percentage
Statistically derived criteria	21	40	10.22%
Specific percent positive	16	20	5.08%
Specific number of positive results	21	35	8.97%

HEP11. (Answer this question ONLY if you selected option 1 in question HEP 10) What is the target percentage for the systemic HEP? (specify percentage, e.g., 1.5%, 5%, 10%)?

Response	Frequency	Weighted Frequency	Weighted Percentage
3.5	1	1	2.86%
5	14	15	37.46%
11	1	1	2.69%
11.87	2	2	5.20%
14.5	1	1	2.69%
50	1	10	24.55%
60	1	10	24.55%
Total	21	40	100.00%

HEP12. (Answer this question ONLY if you selected option 1 in question HEP 10) What is the degree of confidence for the systemic HEP statistically derived HEP criteria? (specify %, e.g., 90%, 95%, 99.5%)

	Frequency	Weighted Frequency	Weighted Percentage
90	1	10	24.55%
95	15	16	40.16%
99	3	3	7.89%
99.5	1	10	24.55%
99.95	1	1	2.86%
Total	21	40	100.00%

HEP13. (Answer this question ONLY if you selected option 2 in question HEP 10) What is the specific percent positive that the establishment uses to define systemic HEP criteria (specify percent positive, e.g., 1%, 2.5%, 5%)

Response	Frequency	Weighted Frequency	Weighted Percentage
5	11	13	63.69%
10	2	4	18.55%
12	1	1	6.17%
15	1	1	6.17%
25	1	1	5.42%
Total	16	20	100.00%

HEP14. (Answer this question ONLY if you selected option 3 in question HEP 10) What is the number of positive results that the establishment uses to define a systemic HEP (specify number of positive results, e.g., 1, 2, 5)?

Response	Frequency	Weighted Frequency	Weighted Percentage
0	1	1	3.49%
2	7	20	56.39%
3	4	4	12.02%
6	1	1	3.07%
7	6	7	19.14%
8	1	1	2.85%
99999	1	1	3.04%
Total	21	35	100.00%

HEP15. When a systemic HEP occurs, which of the following actions does the establishment take? *(select all that apply)*

Response	Frequency	Weighted Frequency	Weighted Percentage
Diverts all trimming produced during the high event period to cooking regardless of test result	33	45	11.57%
Applies an intervention to primals/subprimals produced during the high event period	21	33	8.39%
Tests subprimals/primals produced during the high event period for *E. coli* O157:H7 or other STEC	29	42	10.78%
Diverts subprimals/primals produced during the high event period to cooking	22	23	5.96%
Reduces its lot size (e.g., from 5-combo lots to one-combo lots) to increase its confidence that it is not producing adulterated products	4	5	1.19%
Tests food-contact surfaces for *E. coli* O157:H7 or other STEC	3	3	0.84%
Other, specify (Responses not reported)	16	30	7.59%
None	2	2	0.55%

Other Raw Ground Beef Components Question Series

CMPINT1. Does the establishment produce other common components of ground beef and patties (e.g., head meat, cheek meat, weasand, hearts, Low Temperature Rendered Beef, product from Advanced Meat Recovery Systems)? Answer this question if the establishment produces these components regardless of intended use.

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	172	361	15.80%
No	305	1919	84.05%
No Response	3	3	0.15%
Total	480	2283	100.0%

CMPINT2. Does the establishment identify the intended use of the other components?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	104	216	59.92%
No	30	64	17.72%
The intended use is unclear or not supported	38	81	22.36%
Total	172	361	100.0%

CMPINT3. What is the intended use of each of the other components?

	Raw, non-intact use (e.g., ground beef, hamburger, or patties) at the establishment			Raw, non-intact use (e.g., ground beef, hamburger, or patties) at another establishment		
Other components	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Head Meat	18	49	22.71%	34	37	17.19%
Cheek Meat	19	45	20.65%	35	38	17.72%
Weasand	3	5	2.20%	20	21	9.88%
Heart meat	12	42	19.27%	39	43	19.98%
Product from Advanced meat recovery systems	5	5	2.52%	14	15	7.07%
Low-temperature rendered beef	3	12	5.54%	2	2	1.00%

	Raw, intact use at the establishment			Raw, intact use at another establishment		
Other components	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Head Meat	10	17	8.02%	15	17	7.66%
Cheek Meat	11	27	12.46%	18	20	9.15%
Weasand	2	2	1.00%	8	9	4.08%
Heart meat	26	65	30.26%	21	25	11.62%
Product from Advanced meat recovery systems	0	0	0.00%	2	2	1.03%
Low-temperature rendered beef	0	0	0.00%	0	0	0.00%

	RTE use at the establishment			RTE use at another establishment		
Other components	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Head Meat	13	32	14.80%	14	17	8.05%
Cheek Meat	16	40	18.52%	14	18	8.15%
Weasand	0	0	0.00%	4	4	2.06%
Heart meat	11	25	11.56%	13	18	8.33%
Product from Advanced meat recovery systems	0	0	0.00%	2	2	0.96%
Low-temperature rendered beef	0	0	0.00%	0	0	0.00%

	N/A		
Other components	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Head Meat	30	87	40.43%
Cheek Meat	19	66	30.36%
Weasand	77	185	85.68%
Heart meat	15	41	18.83%
Product from Advanced meat recovery systems	86	196	90.87%
Low-temperature rendered beef	100	203	93.97%

CMPINT4. Please identify "other" components and their intended use that are not listed in the previous question.

Responses not reported.

CMPINT5. Identify the intended use for other components and any controls the establishment has in place to ensure that the other components are used as intended. (Select all that apply)

	Est. maintains records showing that the official establishment receiving the raw product processes all of the product into RTE product, such as a copy of HACCP records showing the product meets a lethality CCP matched with bills of lading with corresponding production codes			Est. receives letters of guarantee showing that all product from a particular product class is further processed into RTE product and maintains on-going communication with the receiving establishment to verify that all its product is being processed as RTE		
Other components	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Head Meat	9	12	5.35%	12	15	6.81%
Cheek Meat	8	10	4.82%	12	15	6.91%
Weasand	2	2	0.93%	5	6	2.63%
Heart Meat	7	9	4.33%	10	11	5.18%
Product from Advanced Meat Recovery Systems	1	1	0.46%	1	1	0.46%
Low-temperature rendered beef	0	0	0.00%	0	0	0.00%

	Est. has a contractual agreement with the receiving establishment so the producing establishment has knowledge of the receiving establishment's production process			Other		
Other components	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Head Meat	17	22	10.28%	27	46	21.34%
Cheek Meat	18	23	10.81%	31	55	25.60%
Weasand	6	8	3.90%	6	6	2.95%
Heart Meat	23	32	14.92%	33	67	31.21%
Product from Advanced Meat Recovery Systems	7	8	3.52%	3	4	1.63%
Low-temperature rendered beef	1	1	0.57%	0	0	0.00%

	N/A		
Other components	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Head Meat	48	133	61.57%
Cheek Meat	45	125	57.73%
Weasand	81	186	86.05%
Heart Meat	40	106	49.00%
Product from Advanced Meat Recovery Systems	90	201	92.87%
Low-temperature rendered beef	100	212	97.91%

CMPINT6. Does the establishment apply any interventions to other components of ground beef and patties (e.g., head meat, cheek meat, weasand, hearts)?

Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Yes	127	227	62.80%
No	45	134	37.20%
Total	172	361	100.00%

CMPINT7. Which interventions does the establishment apply? If the establishment implements any of the following interventions to beef components, when do they implement the intervention?

	Raw, non-intact use (e.g., ground beef, hamburger, or patties) at the establishment			Raw, non-intact use (e.g., ground beef, hamburger, or patties) at another establishment		
Other components	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Head Meat	18	49	22.71%	34	37	17.19%
Cheek Meat	19	45	20.65%	35	38	17.72%
Weasand	3	5	2.20%	20	21	9.88%
Heart meat	12	42	19.27%	39	43	19.98%
Product from Advanced meat recovery systems	5	5	2.52%	14	15	7.07%
Low-temperature rendered beef	3	12	5.54%	2	2	1.00%

	Raw, intact use at the establishment			Raw, intact use at another establishment		
Other components	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Head Meat	10	17	8.02%	15	17	7.66%
Cheek Meat	11	27	12.46%	18	20	9.15%
Weasand	2	2	1.00%	8	9	4.08%
Heart meat	26	65	30.26%	21	25	11.62%
Product from Advanced meat recovery systems	0	0	0.00%	2	2	1.03%
Low-temperature rendered beef	0	0	0.00%	0	0	0.00%

	RTE use at the establishment			RTE use at another establishment		
Other components	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Head Meat	13	32	14.80%	14	17	8.05%
Cheek Meat	16	40	18.52%	14	18	8.15%
Weasand	0	0	0.00%	4	4	2.06%
Heart meat	11	25	11.56%	13	18	8.33%
Product from Advanced meat recovery systems	0	0	0.00%	2	2	0.96%
Low-temperature rendered beef	0	0	0.00%	0	0	0.00%

	N/A		
Other components	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Head Meat	30	87	40.43%
Cheek Meat	19	66	30.36%
Weasand	77	185	85.68%
Heart meat	15	41	18.83%
Product from Advanced meat recovery systems	86	196	90.87%
Low-temperature rendered beef	100	203	93.97%

CMPINT8. Does the establishment apply interventions other than interventions mentioned in the previous question?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes, specify	33	69	30.45%
100% of cheek and head meat receive Lactic Acid intervention treatment throughout the year.	1	1	1.55%
2.5 % Citric acid hand-held application	1	3	3.89%
Acetic Acid year round (not just "high prevalence" or "non-high prevalence")	1	3	3.89%
Beefxide (lactic acid + Citric acid)	1	1	1.78%
Beefxide (Lactic acid and Citric acid)	1	1	1.45%
Beefxide (Lactic acid/acetic acid/potassium Hydroxide mixture).	1	1	1.55%
Beefxide, trim , hot water at 180 degrees F	1	1	1.78%
Bromine- cheek/head/tongue	1	1	1.56%
chlorinated water rinse	1	1	1.78%
Chlorine	1	1	1.78%
Citric Acid	2	5	7.78%
Hot water spray	1	3	3.89%
Hot water wash	1	3	3.89%
hot water wash cabinet for heads	1	1	1.45%
LA intervention in slaughter process applied throughout the year	1	3	3.89%
Lactic acid (LAA) intervention throughout the year.	1	1	1.55%
Lactic Acid applied throughout entire year, all the time.	1	1	1.78%
Lactic acid intervention applied all year long	2	14	20.13%
Lactic acid intervention is applied all year long	1	3	3.89%
Lactic Acid is applied throughout the year	1	1	1.55%
Lactic Acid throughout the year	1	1	1.78%
steam vac and head wash	1	1	1.45%
Sulfuric acid	1	1	1.55%
The establishment applies a hot water wash to hearts in slaughter as a CCP in its HACCP plan, including supporting documentation, written monitoring and verification procedures, corrective actions, and recordkeeping. The intervention is applied	1	3	3.89%
The establishment applies LAA to the head meat and cheek meat of each animal all year long. The product is used only in the product and not shipped.	1	3	3.89%
They apply LAA to every carcass and variety meat. They also employ a trim and warm water wash to those as well.	1	3	3.89%
They apply the intervention to each carcass and variety meats	1	3	3.89%
Trim	2	4	5.55%
Trim/wash/flush after organic acid rinse	1	1	1.56%
zero tolerance CCP on slaughter floor	1	1	1.78%
No	94	158	69.55%
Total	127	227	100.00%

CMPINT9. Identify which of the following elements the establishment has incorporated into its procedures for each "other" beef components intervention and whether it applies each intervention consistently.

	Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program			Written scientific support documentation		
Intervention	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	77	141	62.3%	76	140	61.9%
Acetic Acid (AA)	10	22	9.8%	10	22	9.8%
Lauramide arginine ethyl ester (LAE)	0	0	0.0%	0	0	0.0%
Acidified sodium chloride (ASC)	8	13	5.6%	8	13	5.6%
Hypobromous acid	7	8	3.4%	6	7	2.9%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	23	30	13.1%	25	32	14.0%

	Written monitoring and verification procedures			Written corrective action when critical limits are not met		
Intervention	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	74	135	59.5%	71	131	58.0%
Acetic Acid (AA)	10	22	9.8%	8	17	7.4%
Lauramide arginine ethyl ester (LAE)	0	0	0.0%	0	0	0.0%
Acidified sodium chloride (ASC)	7	11	5.1%	8	13	5.6%
Hypobromous acid	6	7	2.9%	5	5	2.4%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	23	30	13.1%	22	27	11.9%

	Records documenting the monitoring of critical limits or parameters			Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months		
Intervention	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	0	0	0.0%	75	141	62.0%
Acetic Acid (AA)	0	0	0.0%	9	21	9.3%
Lauramide arginine ethyl ester (LAE)	0	0	0.0%	0	0	0.0%
Acidified sodium chloride (ASC)	0	0	0.0%	8	13	5.6%
Hypobromous acid	0	0	0.0%	6	7	2.9%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	0	0	0.0%	22	25	11.2%

	Intervention Not applied consistently			N/A		
Intervention	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	0	0	0.0%	49	83	36.5%
Acetic Acid (AA)	0	0	0.0%	117	204	90.2%
Lauramide arginine ethyl ester (LAE)	0	0	0.0%	127	227	100.0%
Acidified sodium chloride (ASC)	1	1	0.5%	119	214	94.4%
Hypobromous acid	0	0	0.0%	120	219	96.6%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	2	4	1.7%	101	194	85.4%

Lot Definition Practices

CMPLot1. How does the establishment define a lot of components? (select all that apply)

	# of units per lot of components			Production date		
Lot	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Combo bins	22	27	7.46%	21	40	10.98%
Boxes	26	34	9.40%	64	138	38.35%
Components from carcasses	17	33	9.20%	69	172	47.67%
Time	7	9	2.62%	20	44	12.24%

	Production shift			Time		
Lot	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Combo bins	3	5	1.36%	7	13	3.59%
Boxes	5	7	1.96%	9	15	4.16%
Components from carcasses	5	9	2.47%	5	6	1.62%
Time	6	8	2.28%	8	14	3.83%

	No Response		
Lot	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Combo bins	119	276	76.61%
Boxes	68	166	46.13%
Components from carcasses	76	141	39.04%
Time	131	285	79.04%

CMPLot2. Does the establishment define a lot of components other than the ones listed in the previous question?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes, specify	18	34	9.40%
5 or less combos at 2,000 lbs. each	1	1	0.34%
all product is custom exempt	1	3	0.74%
boxes id's by production date production shift and time	1	1	0.28%
clean up to clean up and each pallet tested for *E. coli* O157:H7	1	1	0.28%
clean up to clean up	1	3	0.74%
client name	1	3	0.74%
Customer Name/Tag Number/Date	1	3	0.74%
Every 2500 lbs. of components	1	1	0.30%
FTB lots by box, Combos 1-5 combos, ground beef by time, 10 min	1	1	0.30%
one carcass is one lot	1	3	0.74%
Pallet of boxes	1	1	0.34%
pallets	1	1	0.28%
Pallets of Boxes	1	1	0.28%
Production date	1	3	0.74%
Raising claims for veal (Free Raise or Group Raise).	1	1	0.32%
Slaughter date is the lot number.	1	3	0.74%
Variety Meats and offal (cheek meat and hearts) are lotted by production date.	1	3	0.74%
When sampling the establishment can designate components from 1 carcass as a lot.	1	3	0.74%
No	154	327	90.60%
Total	172	361	100.00%

Other Raw Ground Beef Component Sampling Question Series

CMPST1. Does the establishment test other raw ground beef components (e.g., head meat, cheek meat, or weasand)?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	56	74	20.52%
No	116	287	79.48%
Total	172	361	100.00%

CMPST2. What pathogens does the establishment test for in other raw ground beef components? (select all that apply)

	Head Meat			Cheek Meat		
Pathogens	Frequency	Weighted Frequency	Weighted Percentage	Frequency	Weighted Frequency	Weighted Percentage
generic *E. coli*	5	6	8.07%	5	6	8.07%
Enterobacteriaciae	0	0	0.00%	0	0	0.00%
APC	5	6	8.07%	5	6	8.07%
E. coli O157:H7	48	63	85.31%	50	58	78.68%
Non-O157 STEC	12	13	18.14%	13	16	21.77%
Virulence genes (*stx*, *eae*, *uidA*, *spi*)	3	3	4.26%	3	3	4.26%
Salmonella	1	1	1.65%	1	1	1.65%
Total coliform count	3	4	4.76%	3	4	4.76%

	Weasand			Heart meat		
Pathogens	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
generic *E. coli*	3	4	4.76%	5	6	8.07%
Enterobacteriaciae	0	0	0.00%	0	0	0.00%
APC	3	4	4.76%	4	5	6.42%
E. coli O157:H7	27	29	38.83%	49	64	86.87%
Non-O157 STEC	8	9	11.73%	14	16	21.24%
Virulence genes (*stx, eae, uidA, spi*)	2	2	2.81%	3	3	4.26%
Salmonella	0	0	0.00%	1	1	1.65%
Total coliform count	2	2	3.11%	3	4	4.76%

	Product from Advanced meat recovery systems			Low-temperature rendered beef		
Pathogens	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
generic *E. coli*	1	1	1.45%	1	1	1.45%
Enterobacteriaciae	0	0	0.00%	0	0	0.00%
APC	2	2	3.11%	1	1	1.45%
E. coli O157:H7	16	17	23.56%	4	13	17.62%
Non-O157 STEC	4	5	6.22%	0	0	0.00%
Virulence genes (*stx, eae, uidA, spi*)	1	1	1.45%	0	0	0.00%
Salmonella	1	1	1.65%	1	1	1.45%
Total coliform count	1	1	1.45%	1	1	1.45%

	Other			N/A		
Pathogens	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
generic *E. coli*	1	1	1.45%	0	68	91.93%
Enterobacteriaciae	0	0	0.00%	0	74	100.00%
APC	1	1	1.45%	51	68	91.93%
E. coli O157:H7	5	5	7.27%	1	1	1.65%
Non-O157 STEC	1	1	1.45%	41	56	75.13%
Virulence genes (*stx, eae, uidA, spi*)	0	0	0.00%	53	71	95.74%
Salmonella	0	0	0.00%	53	71	95.24%
Total coliform count	1	1	1.45%	53	71	95.24%

CMPST3. For each pathogen tested, does the establishment use an in-house lab or send the samples out to a contract lab for analysis? (Select all that apply)

	In-house Lab			Contract Lab		
Pathogens	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
generic *E. coli*	2	2	3.11%	4	5	6.42%
Enterobacteriaciae	0	0	0.00%	0	0	0.00%
APC	2	2	3.11%	6	7	9.73%
E. coli O157:H7	8	9	11.63%	46	63	85.36%
Non-O157 STEC	4	4	5.91%	12	15	20.41%
Virulence genes (*stx, eae, uidA, spi*)	1	1	1.45%	2	2	2.81%
Salmonella	0	0	0.00%	5	6	7.67%
Total coliform count	2	2	3.11%	2	2	3.31%

	N/A		
Pathogens	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
generic *E. coli*	50	67	90.47%
Enterobacteriaciae	56	74	100.00%
APC	48	65	87.16%
E. coli O157:H7	2	2	3.01%
Non-O157 STEC	40	55	73.68%
Virulence genes (*stx*, *eae*, *uidA*, *spi*)	53	71	95.74%
Salmonella	51	68	92.33%
Total coliform count	52	69	93.58%

CMPST4. Does the establishment collect samples for other pathogens not listed in the chart?

Responses	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Yes, specify	0	0	0.00%
No	56	74	100.00%
Total	56	74	100.00%

CMPST5. Approximately how frequently does the establishment sample other raw ground beef components? Select the most appropriate way of categorizing other raw ground beef component sampling (i.e., per year or per week).Then specify the number of raw ground beef component samples per year, e.g., 4,100, 500 or specify the number of raw ground beef component samples per week, e.g., 1, 5, 60.

Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Per week, specify	44	49	66.34%
1-20	19	22	29.71%
21-40	7	8	10.17%
40-59	7	7	9.97%
60-79	6	7	9.02%
80-99	2	2	2.70%
100+	4	4	5.82%
Other	2	2	3.11%
Per year, specify	10	23	30.66%
<100	24	19	25.05%
100-999	0	0	0.00%
1000-1999	2	2	2.70%
2000+	2	2	2.91%

CMPST6. (Answer this question Only if you selected any of the options except N/A for *E. coli* O157:H7, Non-O157 STEC, or Virulence genes in question CMPST2) If the test screen is positive, or if the test is confirmed positive for STEC organisms or virulence genes, what action does the establishment take? (select all that apply)

	Screen positive for STEC			Confirm positive for STEC		
Action Establishment Takes	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to confirmation (for screen positives only)	12	15	20.82%	7	8	10.90%
Divert product to cooking	30	33	45.76%	9	10	14.31%
Destroy product	28	31	43.29%	14	19	26.69%
Sell product for intact use	2	2	3.10%	2	2	3.21%
Other	0	0	0.00%	1	1	1.71%

	N/A		
Action Establishment Takes	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to confirmation (for screen positives only)	35	49	68.27%
Divert product to cooking	15	29	39.92%
Destroy product	12	22	30.02%
Sell product for intact use	50	67	93.70%
Other	53	71	98.29%

CMPST7. (Answer this question only if you selected any of the options except N/A for *E. coli* O157:H7, Non-O157 STEC, or Virulence genes in question CMPST2)
What other actions does the establishment take if the test is confirmed positive for STEC or virulence genes?

Responses not reported.

CMPTST8. (Answer this question only if you selected any of the options except N/A for *Salmonella* in question CMPST2)
If the test is positive for *Salmonella*, what action does the establishment take? (select all that apply)

	Positive test for *Salmonella*			Positive test for Other		
Action Establishment Takes	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to serotyping	0	0	0.00%	0	0	0.00%
Proceed to confirmation	0	0	0.00%	0	0	0.00%
Divert to cooking	2	2	40.52%	0	0	0.00%
Destroy product	0	0	0.00%	0	0	0.00%
Sell product	0	0	0.00%	0	0	0.00%
Other	0	0	0.00%	0	0	0.00%

	N/A			No response		
Action Establishment Takes	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to serotyping	3	4	62.09%	2	2	37.91%
Proceed to confirmation	3	4	62.09%	2	2	37.91%
Divert to cooking	1	1	21.56%	2	2	37.91%
Destroy product	3	4	62.09%	2	2	37.91%
Sell product	3	4	62.09%	2	2	37.91%
Other	3	4	62.09%	2	2	37.91%

CMPST9. What is the component sampling method and how are surface excision samples collected?

	75 slices			Knife		
Sampling Method	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Surface excision (similar to FSIS N-60 method)	1	1	1.35%	15	19	25.37%
Surface excision (N-75 method)	1	1	1.45%	1	1	1.35%
IEH N-60	0	0	0.00%	1	1	1.65%
IEH N-60 Plus sampling	0	0	0.00%	1	1	1.45%
Other Core Sampling	0	0	0.00%	2	2	3.01%
Other automated method (i.e. answer to MechTendST4)	0	0	0.00%	0	0	0.00%

	Scalpel			Scissors		
Sampling Method	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Surface excision (similar to FSIS N-60 method)	2	2	3.01%	11	12	16.29%
Surface excision (N-75 method)	0	0	0.00%	6	9	11.90%
IEH N-60	0	0	0.00%	4	5	6.62%
IEH N-60 Plus sampling	1	1	1.35%	5	6	8.27%
Other Core Sampling	0	0	0.00%	5	6	8.27%
Other automated method (i.e. answer to MechTendST4)	0	0	0.00%	5	6	8.27%

	Unselected		
Sampling Method	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Surface excision (similar to FSIS N-60 method)	3	3	4.66%
Surface excision (N-75 method)	48	63	85.29%
IEH N-60	49	66	88.62%
IEH N-60 Plus sampling	46	63	84.46%
Other Core Sampling	47	64	85.83%
Other automated method (i.e. answer to MechTendST4)	50	67	90.27%

CMPST10. Approximately, how long does it take the establishment to collect a raw ground beef component sample?

Responses	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
15 min or less	26	32	43.12%
30 min	11	21	28.68%
45 min	4	4	5.71%
1 hour	1	1	1.35%
1 hr. 15min	0	0	0.00%
1 hr. 30min	0	0	0.00%
1 hr. 45min	0	0	0.00%
2 hr.	1	1	1.45%
More than 2hrs	13	15	19.68%
Total	56	74	100.00%

CMPST11. What is the size of individual pieces of raw ground beef component samples? (Specify dimensions (width, length, and thickness) in inches)

Response	Frequency	Weighted Frequency	Weighted Percentage
1x3x1	17	21	28.18%
2x2x1	4	13	17.82%
1x4x1	7	8	10.68%
1x2x1	5	5	7.37%
2x4x1	4	5	6.10%
1x3x[no response]	3	3	4.66%
1x3x125	3	3	4.36%
3x3x1	1	3	3.63%
1x1x1	2	2	3.01%
1x1x0	1	1	1.65%
1x3x0	1	1	1.65%
1x2x[no response]	1	1	1.35%
1x4x0	1	1	1.35%
1x4x18	1	1	1.35%
4x36x1	1	1	1.35%
8x28x1	1	1	1.35%
Not answered	3	3	4.14%
Total	56	74	100.00%

CMPST12. What is the target weight of the raw ground beef component sample analyzed by the laboratory? (Specify in grams, e.g., 325 grams, 375 grams)

Response	Frequency	Weighted Frequency	Weighted Percentage
275	1	1	1.65%
325	2	4	5.28%
375	47	60	81.68%
452	1	1	1.65%
454	2	4	5.07%
907	1	1	1.65%
1200	1	1	1.35%
Not answered	1	1	1.65%
Total	56	74	100.00%

CMPST13. How are raw ground beef component samples collected?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Distributed over time (i.e., samples collected at fixed intervals across production time)	19	24	32.44%
Distributed over space (i.e., from multiple bins or boxes) (answer next question)	37	50	67.56%
Total	56	74	100.00%

CMPST14. Does the establishment take sample slices throughout the bin or box or does the establishment take sample slices only from the top of the bin or box?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Throughout the bin or box	46	53	71.30%
From the top of the bin or box only	8	18	23.73%
No response	2	4	4.98%
Total	56	74	100.00%

CMPST15. On average, what percentage of raw ground beef component samples is from cattle slaughtered on-site (specify percentage, e.g. 25%, 50%, 100%)? Do not include raw ground beef component samples from purchased product (e.g., external/outside sources).

Responses	Frequency	Weighted Frequency	Weighted Percentage
0	1	10	13.26%
100	55	64	86.74%
Total	56	74	100.00%

CMPST16. Does the establishment receive other components through a broker?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	2	11	14.71%
No	54	63	85.29%
Total	56	74	100.00%

CMPST17. For other component samples from external/outside sources, does the establishment communicate results to its supplier?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	2	11	14.71%
No	54	63	85.29%
Total	56	74	100.00%

CMPST18. Does the establishment use microbiological data from its ground beef components sampling program to verify the effectiveness of its sanitary dressing procedures?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	40	44	59.40%
No	16	30	40.60%
Total	56	74	100.00%

CMPST19. Does the written program address corrective actions the establishment will take when the program is out of control?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	45	59	79.06%
No	11	16	20.94%
Total	56	74	100.00%

CMPST20. Does the establishment perform verification activities to validate its corrective actions in bringing an out-of-control process back under control?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	42	46	62.39%
No	14	28	37.61%
Total	56	74	100.00%

CMPST21. What verification activities does the establishment perform to prove that their corrective actions bring an out-of-control process back under control?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Visual observation	5	6	11.97%
Microbiological sampling	4	5	9.92%
Both	32	35	75.46%
Other, specify	1	1	2.65%
Visual observation	1	1	2.65%
Total	42	46	100.00%

CMPST22. Does the establishment define criteria to determine when its corrective actions bring the process back under control?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	41	54	72.84%
No	15	20	27.16%
Total	56	74	100.00%

Raw Ground Beef Question Series

RGBINT1. Does the establishment produce raw ground beef products (i.e., ground beef, hamburger, and patties including variations of these products such as ground beef with added cherries, taco flavored patties, etc.)?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	279	1355	59.3%
No	198	925	40.5%
No response	3	3	0.2%
Total	480	2283	100.0%

RGBINT2. Does the establishment identify the intended use of the raw ground beef products?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	216	1095	80.9%
No	63	259	19.1%
Total	279	1355	100.0%

RGBINT3. Identify the intended use for raw ground beef and any controls the establishment has in place to ensure the ground beef is used as intended.

	Est. maintains records showing that the official establishment receiving the raw product processes all of the product into RTE product, such as a copy of HACCP records showing the product meets a lethality CCP matched with bills of lading with corresponding production codes			Est. receives letters of guarantee showing that all product from a particular product class is further processed into RTE product and maintains on-going communication with the receiving establishment to verify that all its product is being processed as RTE		
Raw Ground Beef Product Intended Use	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
RTE product at the establishment	8	43	3.9%	2	5	0.5%
RTE product at another establishment	3	12	1.1%	6	42	3.8%

	Est. has a contractual agreement with the receiving establishment so the producing establishment has knowledge of the receiving establishment's production process			Other		
Raw Ground Beef Product Intended Use	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
RTE product at the establishment	4	13	1.2%	13	56	5.1%
RTE product at another establishment	7	37	3.4%	12	66	6.0%

	N/A		
Raw Ground Beef Product Intended Use	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
RTE product at the establishment	189	978	89.3%
RTE product at another establishment	188	940	85.8%

RGBINT4. Does the establishment apply any interventions to ground beef products?

Responses	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Yes	22	100	7.4%
No	257	1254	92.6%
Total	279	1355	100.0%

RGBINT5. Which interventions does the establishment apply? If the establishment implements any of the following interventions to raw ground beef, when do they implement the intervention?

	Interventions applied throughout the year			Interventions added during High Prevalence Season only (i.e., April – Oct)		
Interventions	Frequency	Weighted Frequency	Weighted Percentage	Frequency	Weighted Frequency	Weighted Percentage
Lactic acid (LAA)	6	27	27.0%	0	0	0.0%
Acetic Acid (AA)	1	1	1.1%	0	0	0.0%
Acidified sodium chloride (ASC)	7	42	41.4%	0	0	0.0%
Lauramide arginine ethyl ester (LAE)	0	0	0.0%	0	0	0.0%
High pressure processing (HPP)	4	15	14.6%	0	0	0.0%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	0	0	0.0%	0	0	0.0%

	Varies by supplier (i.e., purchase specifications)			N/A		
Interventions	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	0	0	0.0%	16	73	73.0%
Acetic Acid (AA)	0	0	0.0%	21	99	98.9%
Acidified sodium chloride (ASC)	0	0	0.0%	15	59	58.6%
Lauramide arginine ethyl ester (LAE)	0	0	0.0%	22	100	100.0%
High pressure processing (HPP)	0	0	0.0%	22	100	100.0%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	0	0	0.0%	18	86	85.4%

RRBINT6. Does the establishment apply interventions other than interventions mentioned in the previous question?

Responses	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Yes, specify	5	26	25.7%
2.5% Citric Acid	1	11	11.2%
6.25% Sodium Nitrite (120-130 ppm) and natural (salt, garlic) added ingredients to formulation that has been shown through inoculation studies in 2008 to reduce *E. coli* O157:H7 by 1.5 logs by the low pH (6.0, and low water activity 0.97)_and on	1	1	1.0%
Keeper (Sodium Chlorite)	1	3	2.7%
Organic Acid- Citrilow- applied throughout the year	1	1	1.0%
Ultraviolet light	1	10	9.8%
No	17	75	74.3%
Total	22	100	100.0%

RGBINT7. Identify which of the following elements the establishment has incorporated into its program or procedures for each raw ground beef intervention. Also, indicate whether the establishment applies each of its raw ground beef inventions consistently. (Select all that apply)

	Critical operating parameters are incorporated in its HACCP plan, Sanitation SOPs, or other prerequisite program			Written scientific support documentation		
Support	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	6	27	27.0%	6	27	27.0%
Acetic Acid (AA)	1	1	1.1%	1	1	1.1%
Acidified sodium chloride (ASC)	7	42	41.4%	7	42	41.4%
Lauramide arginine ethyl ester (LAE)	0	0	0.0%	0	0	0.0%
High pressure processing (HPP)	0	0	0.0%	0	0	0.0%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	4	15	14.6%	3	5	4.8%

	Written monitoring and verification procedures			Written corrective action when critical limits are not met		
Support	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	6	27	27.0%	5	17	17.3%
Acetic Acid (AA)	1	1	1.1%	1	1	1.1%
Acidified sodium chloride (ASC)	7	42	41.4%	6	30	30.2%
Lauramide arginine ethyl ester (LAE)	0	0	0.0%	0	0	0.0%
High pressure processing (HPP)	0	0	0.0%	0	0	0.0%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	4	15	14.6%	3	5	4.8%

	Records documenting the monitoring of critical limits or parameters			Intervention applied consistently (no NRs or excessive est. documentations of failures or corrective actions in the last 12 months		
Support	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	0	0	0.0%	4	16	16.2%
Acetic Acid (AA)	0	0	0.0%	1	1	1.1%
Acidified sodium chloride (ASC)	0	0	0.0%	7	42	41.4%
Lauramide arginine ethyl ester (LAE)	0	0	0.0%	0	0	0.0%
High pressure processing (HPP)	0	0	0.0%	0	0	0.0%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	0	0	0.0%	4	15	14.6%

	Intervention Not applied consistently			N/A		
Support	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Lactic acid (LAA)	0	0	0.0%	16	73	73.0%
Acetic Acid (AA)	0	0	0.0%	21	99	98.9%
Acidified sodium chloride (ASC)	0	0	0.0%	15	59	58.6%
Lauramide arginine ethyl ester (LAE)	0	0	0.0%	22	100	100.0%
High pressure processing (HPP)	0	0	0.0%	22	100	100.0%
Peroxyacetic acid (PAA) (trade names: Inspexx, Microtox, other)	0	0	0.0%	18	86	85.4%

Raw Ground Beef Lot Definitions

RGBLot1. How does the establishment define a lot of ground beef? (If neither of the first two columns applies, please leave it blank. If an option is not applicable, please type N/A in the last column.)

	How many pounds, on average, are represented by each lot (specify poundage of ground beef lot, e.g., 1,000; 5,000; 10,000)?				How many pounds, on average, of trim go into a grinder lot (specify poundage of trim, e.g., 1,000; 5,000; 10,000)?			
	Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Production date	<500	82	453	33.4%	<500	77	447	33.0%
	500-999	26	132	9.8%	500-999	13	49	3.6%
	1,000-9,999	55	320	23.6%	1,000-9,999	40	231	17.1%
	10,000-99,999	17	100	7.4%	10,000-99,999	8	43	3.2%
	100,000+	14	68	5.0%	100,000+	5	23	1.7%
Production hour	<500	3	17	1.2%	<500	3	17	1.2%
	500-999	1	3	0.2%	500-999	1	3	0.2%
	1,000-9,999	2	11	0.8%	1,000-9,999	3	21	1.5%
	10,000-49,999	4	22	1.6%	10,000-49,999	3	12	0.9%
	50,000+	1	1	0.1%	50,000+	0	0	0.0%
30-minute increments	<250	3	17	1.2%	<250	3	17	1.2%
	250-499	1	3	0.2%	250-499	1	3	0.2%
	500-4,999	0	0	0.0%	500-4,999	0	0	0.0%
	5,000-24,999	2	11	0.8%	5,000-24,999	1	10	0.7%
	25,000+	0	0	0.0%	25,000+	0	0	0.0%
15-minute increments	<125	3	17	1.2%	<125	3	17	1.2%
	125-249	1	3	0.2%	125-249	1	3	0.2%
	250-2,499	0	0	0.0%	250-2,499	0	0	0.0%
	2,500-12,499	1	10	0.7%	2,500-12,499	1	10	0.7%
	12,500+	0	0	0.0%	12,500+	0	0	0.0%
Other	Responses not reported				Responses not reported			

	N/A (if this option applies, enter N/A in the box)			
	Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Production date	N/A	70	242	17.8%
Production hour	N/A	218	1026	75.7%
30-minute increments	N/A	224	1050	77.5%
15-minute increments	N/A	224	1050	77.5%
Other	N/A	185	952	70.3%

RGBLot2. If other was selected in the previous question, please specify. (If not applicable applies, type N/A in the box)

Responses not reported.

Raw Ground Beef Sampling Question Series

RGBST1. Does the establishment test raw ground beef?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	202	1040	76.77%
No	77	315	23.23%
Total	279	1355	100.00%

RGBST2. For each pathogen tested, which type of laboratory does the establishment use for analysis?

	In-house laboratory			contract laboratory		
Ground Beef Product Samples	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
generic *E. coli*	12	63	6.05%	22	124	11.89%
Enterobacteriaciae	0	0	0.00%	1	1	0.10%
APC	8	45	4.36%	17	100	9.61%
Escherichia coli O157:H7	15	91	8.74%	179	901	86.64%
Non-O157 STEC	3	14	1.31%	16	45	4.36%
Virulence genes (*stx*, *eae*, *uidA*, *spi*)	1	1	0.10%	1	3	0.26%
Salmonella	5	36	3.48%	19	107	10.28%
Total coliform count	8	38	3.67%	10	63	6.07%

	N/A		
Ground Beef Product Samples	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
generic *E. coli*	168	854	82.06%
Enterobacteriaciae	201	1039	99.90%
APC	177	895	86.03%
Escherichia coli O157:H7	8	48	4.62%
Non-O157 STEC	183	981	94.34%
Virulence genes (*stx*, *eae*, *uidA*, *spi*)	200	1036	99.64%
Salmonella	178	897	86.24%
Total coliform count	184	939	90.26%

RGBST3. (Answer this question ONLY if any option is selected for *Escherichia coli* O157:H7, Non-O157 STEC, or Virulence genes (*stx, eae, uidA, spi*) in question RGBST2).
If the test screen is positive for STEC or virulence genes, what action does the establishment take? (select all that apply)

	Proceed to confirmation			Divert to cooking		
Sample Type	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Escherichia coli O157:H7	95	455	45.71%	79	391	39.24%
Non-O157 STEC	22	74	7.43%	18	75	7.53%
Virulence genes (*stx, eae, uidA, spi*)	9	37	3.69%	6	29	2.88%

	Destroy product			Sell product		
Sample Type	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Escherichia coli O157:H7	94	469	47.09%	6	44	4.46%
Non-O157 STEC	18	78	7.82%	2	11	1.09%
Virulence genes (*stx, eae, uidA, spi*)	10	49	4.96%	2	11	1.09%

	Other		
Sample Type	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Escherichia coli O157:H7	13	90	9.08%
Non-O157 STEC	12	80	8.07%
Virulence genes (*stx, eae, uidA, spi*)	16	107	10.72%

RGBST4. (Answer this question ONLY if any option is selected for *Escherichia coli* O157:H7 or Non-O157 STEC, in question RGBST2).
If the test is confirmed positive for STEC, what action does the establishment take? (select all that apply)

	Divert to cooking			Destroy product		
Sample Type	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Escherichia coli O157:H7	99	459	46.08%	130	589	59.17%
Non-O157 STEC	27	117	11.77%	35	151	15.20%

	Other		
Sample Type	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Escherichia coli O157:H7	19	112	11.23%
Non-O157 STEC	13	56	5.61%

RGBST5. (Answer this question ONLY if any option is selected *Salmonella* in question RGBST2).
If the test is positive for *Salmonella* or "other", what action does the establishment take? (select all that apply)

	Positive test for *Salmonella*			Positive test for Other		
Action Taken	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to serotyping	5	18	12.32%	0	0	0.00%
Proceed to confirmation	9	45	31.74%	0	0	0.00%
Divert to cooking	8	40	27.91%	0	0	0.00%
Destroy product	9	44	30.77%	2	12	8.73%
Sell product	8	37	25.55%	1	3	1.88%
Other	5	24	17.04%	2	4	2.73%

	None selected		
Action Taken	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Proceed to serotyping	19	125	87.68%
Proceed to confirmation	15	98	68.26%
Divert to cooking	16	103	72.09%
Destroy product	13	87	60.50%
Sell product	15	104	72.57%
Other	17	115	80.22%

RGBST6. (Answer this question ONLY if any option is selected *Salmonella* in question RGBST2)
If you selected "other" actions taken in the previous question, please identify them below.

Response	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Product produced under AMS tested positive for *Salmonella* will not be sold for NSL. it will be diverted for cooking.	1	1	3.35%
If 2 of 10 rolling samples are positive will review procedures and determine source of contamination.	1	1	3.13%
N/A	2	11	29.76%
Not answered	4	23	63.76%
Total	8	37	100.00%

RGBST7. Does the establishment test ground beef samples for microbiological organisms other than the generic *E. coli*, Enterobacteriaciae, APC, *Escherichia coli* O157:H7, non-O157 STEC, Virulence genes (*stx*, *eae*, *uidA*, *spi*), *Salmonella*, and total coliform count?

Responses	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Yes, specify	5	31	3.02%
Customer directed staph & Listeria spp. - 1 product	1	10	0.94%
Generic *E. coli*	1	10	0.94%
Lactic acid bacteria counts, Listeria	1	1	0.10%
Listeria sp.	1	1	0.10%
Salmonella	1	10	0.94%
No	197	1009	96.98%
Total	202	1040	100.00%

RGBST8. Approximately how frequently does the establishment sample raw ground beef? Select the most appropriate way of categorizing raw ground beef sampling (i.e., per year or per week). Then specify the number of raw ground beef samples per year, e.g., 4, 100, 500 or specify the number of raw ground beef samples per week, e.g., 1, 5, 60.

Response	Frequency	Weighted Frequency	Weighted Percentage
Per year, specify	164	872	83.80%
1-9	124	664	63.83%
10-19	32	152	14.64%
20-49	6	44	4.27%
50-99	1	10	0.94%
100+	1	1	0.12%
Per week, specify	12	38	3.67%
1-5	6	21	2.06%
6-9	1	1	0.10%
10-19	3	5	0.46%
20-49	1	10	0.94%
50+	1	1	0.10%
Per day, specify	19	94	9.01%
1-5	9	48	4.58%
6-9	3	21	2.00%
10-19	0	1	0.10%
20-49	4	13	1.28%
50+	2	11	1.04%
Other	1	1	0.10%
Per shift, specify	7	37	3.52%
1	5	35	3.32%
Other	2	2	0.20%
Total	202	1040	100.00%

RGBST9. How is the raw ground beef sample collected?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Distributed over time (i.e., samples collected at fixed intervals across production time)	69	328	31.52%
Distributed over space (i.e., from multiple bins or boxes)	28	187	17.99%
Other, specify (responses not reported)	104	524	50.39%
Not answered	1	1	0.10%
Total	202	1040	100.00%

RGBST10. Approximately how long does it take the establishment to collect a raw ground beef sample?

Responses	Frequency	Weighted Frequency	Weighted Percentage
15 min or less	140	688	66.17%
30 min	27	149	14.34%
45 min	4	9	0.89%
1hour	15	84	8.08%
1 hr. 15min	1	10	0.94%
1 hr. 30min	1	11	1.08%
1 hr. 45min	0	0	0.00%
2 hrs.	8	51	4.94%
More than 2 hours	5	26	2.48%
Not answered	1	11	1.08%
Total	202	1040	100.00%

RGBST11. Does the establishment use microbiological data from its ground beef sampling program to verify the effectiveness of its sanitary dressing procedures?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	85	227	21.83%
No	47	134	12.89%
N/A (non-slaughter plant)	70	679	65.28%
Total	202	1040	100.00%

RGBST12. Has the establishment identified process control criteria in its sanitary dressing procedures?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	40	87	8.33%
No	89	244	23.42%
N/A (non-slaughter plant)	73	710	68.25%
Total	202	1040	100.00%

RGBST13. Does the written program address corrective actions the establishment will take when the program is out of control?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	132	685	65.90%
No	70	355	34.10%
Total	202	1040	100.00%

RGBST14. Does the establishment perform verification activities to validate its corrective actions bringing an out-of-control process back under control?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	55	250	24.08%
No	147	790	75.92%
Total	202	1040	100.00%

RGBST15. What verification activities does the establishment perform to prove that their corrective actions bring an out-of-control process back under control?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Visual observation	11	33	13.29%
Microbiological sampling	10	67	26.57%
Both	28	119	47.45%
Other, specify	6	32	12.68%
destroy product	1	11	4.48%
more frequent ZT tests	1	3	1.07%
receive information from supplier about corrective actions	1	10	3.92%
SANITATION	1	3	1.07%
Subsequent normally scheduled frequency generic *E. coli* carcass sampling is to indicate process is in back in control.	1	3	1.07%
Varies	1	3	1.07%
Total	55	250	100.00%

RGBST16. Does the establishment define criteria to determine when to take action to bring the process back under control?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	44	200	79.79%
No	11	51	20.21%
Total	55	250	100.00%

RGBST17. On average, what percentage of raw ground beef samples is from cattle slaughtered on-site (specify percentage, e.g. 25%, 50%, 100%)?

Responses	Frequency	Weighted Frequency	Weighted Percentage
0-19	86	752	72.27%
20-39	3	3	0.29%
40-59	10	3	0.29%
60-79	7	16	1.49%
80-100	92	230	22.15%
Not response	1	1	0.12%
Total	202	1040	100.00%

RGBST18. Does the establishment receive raw ground beef products through a broker (wholesaler, distribution warehouse or center)?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	34	245	23.56%
No	168	795	76.44%
Total	202	1040	100.00%

RGBST19. For raw ground beef samples from external/outside sources, does the establishment communicate results to its supplier?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	27	200	19.24%
No	20	101	9.68%
N/A (establishment does not receive samples from outside sources)	155	739	71.08%
Total	202	1040	100.00%

Non-O157 STEC Question Series

REA1. Did the establishment reassess its food safety system specific to controls for non-O157 STECs?

Response	Frequency	Weighted Frequency	Weighted Percentage
Yes	188	659	28.86%
No	289	1621	70.99%
No response	3	3	0.15%
Total	480	2283	100.0%

nSTEC1. Does the establishment test for STEC organisms or their associated virulence markers?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	101	261	11.5%
No	376	2018	88.4%
Not answered	3	3	0.2%
Total	480	2283	100.0%

nSTEC2. Did the establishment make any changes to its food safety system in response to FSIS testing for non-O157 STECs?

Responses	Frequency	Weighted Frequency	Weighted Percentage
Yes	25	37	14.3%
No	65	183	70.0%
Cannot determine based on available records or my observations	11	41	15.6%
Total	101	261	100.0%

nSTECST3. How many raw beef product samples did the establishment take collect and analyze for STEC in the last twelve months? (select all that apply)

	# of Samples Analyzed for *E. coli* O157:H7				# of Samples Analyzed for non-O157 STEC			
Raw Beef Product	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Carcasses during slaughter	0-9	16	40	15.17%	0-9	10	25	9.71%
	10-99	2	4	1.44%	10-99	0	0	0.00%
	100-999	3	4	1.41%	100-999	1	1	0.47%
	1,000-10,000	2	2	0.88%	1,000-10,000	0	0	0.00%
	10,000+	0	0	0.00%	10,000+	0	0	0.00%
Fabricated carcasses	0-9	2	4	1.41%	0-9	1	3	1.03%
	10-99	5	7	2.72%	10-99	2	2	0.85%
	100-999	1	1	0.41%	100-999	0	0	0.00%
	1,000-10,000	2	2	0.85%	1,000-10,000	0	0	0.00%
	10,000+	0	0	0.00%	10,000+	0	0	0.00%
Primal and subprimals	0-9	3	7	2.52%	0-9	1	1	0.47%
	10-99	4	13	4.98%	10-99	3	3	1.25%
	100-999	4	15	5.57%	100-999	1	1	0.47%
	1,000-10,000	2	2	0.85%	1,000-10,000	0	0	0.00%
	10,000+	0	0	0.00%	10,000+	0	0	0.00%
Beef trimmings	0-9	8	18	7.04%	0-9	11	17	6.66%
	10-99	8	21	7.92%	10-99	9	12	4.52%
	100-999	9	22	8.40%	100-999	11	24	9.12%
	1,000-10,000	6	9	3.28%	1,000-10,000	5	7	2.78%
	10,000+	19	21	8.13%	10,000+	2	2	0.94%
Bench trim	0-9	6	13	4.96%	0-9	4	9	3.55%
	10-99	4	16	6.22%	10-99	3	5	1.93%
	100-999	2	2	0.85%	100-999	0	0	0.00%
	1,000-10,000	0	0	0.00%	1,000-10,000	0	0	0.00%
	10,000+	0	0	0.00%	10,000+	0	0	0.00%
Other ground beef components	0-9	2	4	1.44%	0-9	8	11	4.02%
	10-99	3	3	1.29%	10-99	3	3	1.20%
	100-999	7	8	2.96%	100-999	2	2	0.88%
	1,000-10,000	11	12	4.70%	1,000-10,000	1	1	0.47%
	10,000+	0	0	0.00%	10,000+	0	0	0.00%
Ground beef	0-9	24	71	27.29%	0-9	17	58	22.11%
	10-99	10	43	16.46%	10-99	6	17	6.51%
	100-999	4	15	5.63%	100-999	2	12	4.78%
	1,000-10,000	3	4	1.41%	1,000-10,000	0	0	0.00%
	10,000+	0	0	0.00%	10,000+	0	0	0.00%

	# of Samples Analyzed for Virulence Genes (*stx, eae, uidA, spi*)				# of Samples Analyzed for Other STEC			
Raw Beef Product	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Carcasses during slaughter	0-9	3	8	3.08%	0-9	3	8	3.08%
	10-99	0	0	0.00%	10-99	0	0	0.00%
	100-999	0	0	0.00%	100-999	0	0	0.00%
	1,000-10,000	1	1	0.47%	1,000-10,000	0	0	0.00%
	10,000+	0	0	0.00%	10,000+	0	0	0.00%
Fabricated carcasses	0-9	0	0	0.00%	0-9	0	0	0.00%
	10-99	0	0	0.00%	10-99	0	0	0.00%
	100-999	0	0	0.00%	100-999	0	0	0.00%
	1,000-10,000	0	0	0.00%	1,000-10,000	0	0	0.00%
	10,000+	0	0	0.00%	10,000+	0	0	0.00%
Primal and subprimals	0-9	1	1	0.47%	0-9	1	1	0.47%
	10-99	0	0	0.00%	10-99	0	0	0.00%
	100-999	0	0	0.00%	100-999	0	0	0.00%
	1,000-10,000	0	0	0.00%	1,000-10,000	0	0	0.00%
	10,000+	0	0	0.00%	10,000+	0	0	0.00%
Beef trimmings	0-9	6	9	3.28%	0-9	8	11	4.08%
	10-99	0	0	0.00%	10-99	2	2	0.81%
	100-999	3	3	1.18%	100-999	0	0	0.00%
	1,000-10,000	1	1	0.38%	1,000-10,000	0	0	0.00%
	10,000+	0	0	0.00%	10,000+	0	0	0.00%
Bench trim	0-9	1	1	0.47%	0-9	1	1	0.47%
	10-99	0	0	0.00%	10-99	0	0	0.00%
	100-999	0	0	0.00%	100-999	0	0	0.00%
	1,000-10,000	0	0	0.00%	1,000-10,000	0	0	0.00%
	10,000+	0	0	0.00%	10,000+	0	0	0.00%
Other ground beef components	0-9	4	4	1.65%	0-9	4	4	1.65%
	10-99	0	0	0.00%	10-99	0	0	0.00%
	100-999	0	0	0.00%	100-999	1	1	0.47%
	1,000-10,000	0	0	0.00%	1,000-10,000	0	0	0.00%
	10,000+	0	0	0.00%	10,000+	0	0	0.00%
Ground beef	0-9	11	58	22.01%	0-9	12	60	23.04%
	10-99	0	0	0.00%	10-99	1	3	1.03%
	100-999	0	0	0.00%	100-999	0	0	0.00%
	1,000-10,000	0	0	0.00%	1,000-10,000	0	0	0.00%
	10,000+	0	0	0.00%	10,000+	0	0	0.00%

	N/A (if this option applies, type N/A in the box)			
Raw Beef Product	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Carcasses during slaughter	N/A	66	185	70.76%
Fabricated carcasses	N/A	78	216	82.64%
Primal and subprimals	N/A	73	191	73.23%
Beef trimmings	N/A	40	150	57.57%
Bench trim	N/A	74	196	75.07%
Other ground beef components	N/A	68	206	78.89%
Ground beef	N/A	48	101	38.81%

nSTECST4. Please identify the "other" type and number of raw beef product samples the establishment took.

Responses not reported.

nSTECST5. In the last 12 months, how many STEC positives has the establishment received from its own testing?

	# of Samples Analyzed for *E. coli* O157:H7				# of Samples Analyzed for non-O157 STEC			
Raw Beef Product	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Carcasses during slaughter	0	16	37	14.14%	0	8	17	6.54%
	1-5	2	4	1.41%	1-5	0	0	0.00%
	6-10	0	0	0.00%	6-10	0	0	0.00%
	11-20	0	0	0.00%	11-20	0	0	0.00%
	21+	0	0	0.00%	21+	0	0	0.00%
Fabricated carcasses	0	4	5	1.75%	0	4	5	1.75%
	1-5	4	4	1.41%	1-5	0	0	0.00%
	6-10	0	0	0.00%	6-10	0	0	0.00%
	11-20	0	0	0.00%	11-20	0	0	0.00%
	21+	0	0	0.00%	21+	0	0	0.00%
Primal and subprimals	0	11	36	13.76%	0	5	8	2.87%
	1-5	1	1	0.41%	1-5	1	1	0.41%
	6-10	0	0	0.00%	6-10	0	0	0.00%
	11-20	0	0	0.00%	11-20	0	0	0.00%
	21+	0	0	0.00%	21+	0	0	0.00%
Beef trimmings	0	21	48	18.29%	0	17	28	10.90%
	1-5	12	24	9.30%	1-5	10	11	4.08%
	6-10	2	2	0.79%	6-10	1	10	3.75%
	11-20	3	3	1.26%	11-20	3	5	1.96%
	21+	8	9	3.38%	21+	3	4	1.37%
Bench trim	0	10	29	11.20%	0	6	12	4.46%
	1-5	1	3	1.03%	1-5	0	0	0.00%
	6-10	0	0	0.00%	6-10	0	0	0.00%
	11-20	0	0	0.00%	11-20	0	0	0.00%
	21+	0	0	0.00%	21+	0	0	0.00%
Other ground beef components	0	8	11	4.07%	0	8	11	4.08%
	1-5	3	4	1.35%	1-5	3	3	1.26%
	6-10	4	4	1.70%	6-10	0	0	0.00%
	11-20	1	1	0.38%	11-20	0	0	0.00%
	21+	4	4	1.68%	21+	0	0	0.00%
Ground beef	0	33	110	42.20%	0	18	66	25.33%
	1-5	2	4	1.50%	1-5	0	0	0.00%
	6-10	0	0	0.00%	6-10	0	0	0.00%
	11-20	1	1	0.41%	11-20	0	0	0.00%
	21+	0	0	0.00%	21+	0	0	0.00%

	# of Samples Analyzed for Virulence Genes (*stx, eae, uidA, spi*)				# of Samples Analyzed for Other STEC			
Raw Beef Product	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Carcasses during slaughter	0	3	8	3.08%	0	3	8	3.08%
	1-5	0	0	0.00%	1-5	0	0	0.00%
	6-10	0	0	0.00%	6-10	0	0	0.00%
	11-20	0	0	0.00%	11-20	0	0	0.00%
	21+	0	0	0.00%	21+	0	0	0.00%
Fabricated carcasses	0	0	0	0.00%	0	0	0	0.00%
	1-5	0	0	0.00%	1-5	0	0	0.00%
	6-10	0	0	0.00%	6-10	0	0	0.00%
	11-20	0	0	0.00%	11-20	0	0	0.00%
	21+	0	0	0.00%	21+	0	0	0.00%
Primal and subprimals	0	1	1	0.47%	0	1	1	0.47%
	1-5	0	0	0.00%	1-5	0	0	0.00%
	6-10	0	0	0.00%	6-10	0	0	0.00%
	11-20	0	0	0.00%	11-20	0	0	0.00%
	21+	0	0	0.00%	21+	0	0	0.00%
Beef trimmings	0	3	3	1.33%	0	4	5	1.75%
	1-5	4	4	1.56%	1-5	1	1	0.38%
	6-10	0	0	0.00%	6-10	0	0	0.00%
	11-20	0	0	0.00%	11-20	0	0	0.00%
	21+	0	0	0.00%	21+	0	0	0.00%
Bench trim	0	1	1	0.47%	0	1	1	0.47%
	1-5	0	0	0.00%	1-5	0	0	0.00%
	6-10	0	0	0.00%	6-10	0	0	0.00%
	11-20	0	0	0.00%	11-20	0	0	0.00%
	21+	0	0	0.00%	21+	0	0	0.00%
Other ground beef components	0	1	1	0.41%	0	2	2	0.88%
	1-5	1	1	0.38%	1-5	1	1	0.38%
	6-10	0	0	0.00%	6-10	0	0	0.00%
	11-20	0	0	0.00%	11-20	0	0	0.00%
	21+	0	0	0.00%	21+	0	0	0.00%
Ground beef	0	6	39	14.79%	0	8	44	16.85%
	1-5	0	0	0.00%	1-5	0	0	0.00%
	6-10	0	0	0.00%	6-10	0	0	0.00%
	11-20	0	0	0.00%	11-20	0	0	0.00%
	21+	0	0	0.00%	21+	0	0	0.00%

	N/A (if this option applies, type N/A in the box)			
Raw Beef Product	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Carcasses during slaughter	N/A	66	187	71.41%
Fabricated carcasses	N/A	79	218	83.58%
Primal and subprimals	N/A	73	190	72.58%
Beef trimmings	N/A	43	155	59.47%
Bench trim	N/A	73	194	74.13%
Other ground beef components	N/A	70	208	79.65%
Ground beef	N/A	51	115	44.12%

nSTECST6. How many samples that screened positive for non-O157 STEC and then also confirmed positive for non-O157 STEC?

	# of Samples Screened Positive and Confirmed Positive for Non-O157				N/A (if this option applies, type N/A in the box)			
Raw Beef Product	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Carcasses during slaughter	0	6	12	4.49%	N/A	85	224	85.54%
	1-3	1	3	1.03%				
	4-6	0	0	0.00%				
	7-9	0	0	0.00%				
	10+	0	0	0.00%				
Fabricated carcasses	0	4	5	1.81%	N/A	87	229	87.63%
	1-3	0	0	0.00%				
	4-6	1	3	1.03%				
	7-9	0	0	0.00%				
	10+	0	0	0.00%				
Primal and subprimals	0	4	6	2.40%	N/A	86	228	87.19%
	1-3	0	0	0.00%				
	4-6	0	0	0.00%				
	7-9	1	1	0.44%				
	10+	0	0	0.00%				
Beef trimmings	0	16	26	10.11%	N/A	70	205	78.48%
	1-3	8	9	3.34%				
	4-6	0	0	0.00%				
	7-9	0	0	0.00%				
	10+	3	5	1.91%				
Bench trim	0	4	6	2.40%	N/A	88	230	88.07%
	1-3	0	0	0.00%				
	4-6	0	0	0.00%				
	7-9	0	0	0.00%				
	10+	0	0	0.00%				
Other ground beef components	0	7	8	3.22%	N/A	84	227	86.81%
	1-3	4	4	1.65%				
	4-6	0	0	0.00%				
	7-9	1	1	0.41%				
	10+	0	0	0.00%				
Ground beef	0	17	45	17.22%	N/A	81	206	78.77%
	1-3	0	0	0.00%				
	4-6	0	0	0.00%				
	7-9	0	0	0.00%				
	10+	0	0	0.00%				

nSTECST7. How many non-O157 STEC positives were ALSO positive for *E. coli* O157:H7 from its own testing in the last 12 months?

	# of Samples Positive for *E. coli* O157:H7 and Non-O157				N/A (if this option applies, type N/A in the box)			
Raw Beef Product	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**	**Response**	**Frequency**	**Weighted Frequency**	**Weighted Percentage**
Carcasses during slaughter	0	8	16	5.95%	N/A	82	220	84.22%
	1-3	0	0	0.00%				
	4-6	0	0	0.00%				
	7-9	0	0	0.00%				
	10+	0	0	0.00%				
Fabricated carcasses	0	4	5	1.81%	N/A	86	229	87.77%
	1-3	0	0	0.00%				
	4-6	0	0	0.00%				
	7-9	0	0	0.00%				
	10+	0	0	0.00%				
Primal and subprimals	0	6	9	3.31%	N/A	83	224	85.84%
	1-3	0	0	0.00%				
	4-6	0	0	0.00%				
	7-9	0	0	0.00%				
	10+	0	0	0.00%				
Beef trimmings	0	20	31	11.69%	N/A	71	208	79.45%
	1-3	4	13	5.10%				
	4-6	0	0	0.00%				
	7-9	1	1	0.47%				
	10+	1	1	0.47%				
Bench trim	0	4	6	2.40%	N/A	86	228	87.18%
	1-3	0	0	0.00%				
	4-6	0	0	0.00%				
	7-9	0	0	0.00%				
	10+	0	0	0.00%				
Other ground beef components	0	8	9	3.61%	N/A	84	227	86.81%
	1-3	1	1	0.41%				
	4-6	0	0	0.00%				
	7-9	0	0	0.00%				
	10+	1	1	0.38%				
Ground beef	0	15	38	14.57%	N/A	78	202	77.45%
	1-3	0	0	0.00%				
	4-6	0	0	0.00%				
	7-9	0	0	0.00%				
	10+	0	0	0.00%				

nSTECST8. What test method did the establishment use for STEC? (select all that apply)

Responses	Frequency	Weighted Frequency	Weighted Percentage
Biocontrol Systems - Assurance GDS Top 7 STEC (eae)	12	30	11.44%
Biocontrol Systems - Assurance GDS MPX Top 7 STEC	10	14	5.45%
IEH Laboratories - IEH Non-O157 STEC detection and identification method	18	27	10.23%
Life Technologies - RapidFinder™ STEC Screening and Confirmation Assays for Beef Products	0	0	0.00%
Neogen Corporation - NeoSeek™ Approach to STEC Detection Identification confirmatory test	1	11	4.29%
Bio-Rad Laboratories - iQ Check™ VirX and iQ Check™ SerO STEC test methods	2	4	1.46%
DuPont Qualicon - BAX® System Real-Time PCR STEC Suite	11	31	11.67%
Pall Corporation - GeneDisc® Top 6 STEC test kit	2	11	4.19%
Other, specify (Responses not reported)	46	128	48.93%
N/A, establishment does not test for STEC	5	26	9.98%