

Form Approved: OMB No. xxxx-xxxx
Expiration Date: xx/xx/xxxx
See OMB Statement on inside cover

Survey of Meat Slaughter and Processing Establishments

2014

This survey applies only to the plant listed on this label.

Refer to this label as instructed in the survey.

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Send comments regarding this burden estimate or any other aspects of this collection of information, including suggestions for reducing this burden to:

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If you have questions regarding your rights as a study participant, you may call RTI's Office of Research Protection toll-free at 1-866-214-2043.

Instructions

The U.S. Department of Agriculture, Food Safety and Inspection Service (USDA, FSIS), has contracted with RTI International to conduct a survey of meat slaughter and processing establishments. This survey, a follow-up to a survey that was conducted in 2004, collects information about industry's use of food safety technologies and practices. The purpose of this new survey is to understand changes in industry's use of food safety technologies and practices and to collect accurate, up-to-date information to guide policy making and help FSIS fulfill its regulatory responsibilities with the minimum burden possible to industry.

Participation in this survey is important, and we thank you for your help. This survey research will benefit the meat slaughter and processing industry by improving the agency's understanding of current industry practices. As a respondent to the survey, you will receive a summary report of the survey results.

Please answer all questions as they pertain to the specific establishment named on the mailing label attached to the front of this survey booklet. By "establishment" we mean all of the buildings and facilities used for slaughter and processing operations within the general area of the address shown on the mailing label.

Please consult with other members of your organization if you do not know the answer to a particular question. Please try to answer all of the questions. For questions that ask for numbers or percentages, **your best estimate is acceptable.** For purposes of this survey, certain words have particular meanings. For any word printed in **bold** type in a question, please read the definition provided in the margin near the question.

Participation in this survey is voluntary. **The data you provide will be kept secure to the extent permitted by law. Responses to the survey will not be used as the basis of enforcement action against this establishment. We will provide data to FSIS that does not contain identifying information. The study results will be reported to the public only in aggregated form so that individual establishments or firms cannot be identified.**

Please return the completed survey within 10 business days in the enclosed postage-paid return envelope, or to RTI International at (address).

Questions?

Contact the Survey Helpline

If you have any questions as you complete the survey, please send an email to SurveyFSIS@rti.org or call toll-free at xxx-xxxx-xxxx. We operate the Helpline on weekdays from 9:00 a.m. to 5:00 p.m. EST.

By **pre-harvest** we mean any activity prior to the point of slaughter, including activities at the farm, feedlot, or slaughter plant.

By **probiotics** we mean live microbial feed supplements which beneficially affect the host animal by improving its intestinal microbial balance.

By **bacteriophages** we mean viruses with the ability to infect and kill bacteria. This is administered orally as a spray or as a liquid mixed into feed.

By **colicin producing *E. coli* strains** we mean antibacterial proteins produced by some strains of *E. coli* that are lethal for related strains of *E. coli*.

1 Slaughter and Fabrication

1.1 Which of the following pre-harvest management practices do this establishment's suppliers apply as part of their food safety system to control for pathogens of concern such as *Salmonella* and Shiga Toxin producing *E. coli* (STEC)? **Circle all that apply.**

1. Drinking water treatments for purification, including chlorination, ozonation, and electrolyzed water
2. Antibiotics as a feed additive
3. **Probiotics** as a feed additive
4. Vaccination for *Salmonella* or Shiga toxin-producing *E. coli* (STEC)
5. **Bacteriophages** used on farms
6. **Colicin producing *E. coli* strains** as a feed additive
7. Clean and dry bedding for confined operations and holding pens
8. Hide washing before slaughter
9. Other (specify)

-
10. None of the above
 11. Don't know

1.2 How does this establishment dehide carcasses? **Circle all that apply.**

1. This establishment does not dehide carcasses
2. Skinning knife
3. Air knife
4. Mechanical side puller
5. Mechanical down puller
6. Mechanical up puller
7. Other

1.3

Which of the technologies listed below are currently used by this establishment during slaughter and fabrication operations? **Circle all that apply.**

1. Bioluminescent testing system for preoperative sanitation checks (“ATP tests”)
2. Conveyor belts made from materials designed to prevent bacterial growth (for example, coated with silver ions)
3. Steam pasteurization systems (for example, the Frigoscandia)
4. Steam vacuum units
5. Organic acid rinse
6. Tempered carcass rinse/wash
7. Positive air pressure from clean side to dirty side
8. Foreign material detection (for example, metal detection equipment, x-rays, visual inspection systems)
9. Equipment for removal of spinal cord prior to carcass splitting
10. Air injection separation of cuts
11. None of the above

1.4

Which of the practices listed below are currently used by this establishment during slaughter and fabrication operations? **Circle all that apply.**

1. Requires and documents that its animal producers use production practices to control pathogens (for example, clean, dry bedding)
2. Requires and documents that its animal producers use production practices to control chemical residues (for example, drugs or growth hormones)
3. Rotates sanitizing chemicals it uses in the slaughter area per manufacturers label or per scientific advice
4. Uses chemical sanitizers or hot water for food contact surfaces and tools used in the slaughter area
5. Has **written policies and procedures** to control the use of **hazardous chemicals**
6. Has written policies and procedures that require humane handling of animals
7. Applies antimicrobial agents to raw products
8. Removes major lymph nodes
9. None of the above

By **written policies and procedures** we mean a document that describes the establishment’s standard operating procedures.

By **hazardous chemicals** we mean substances such as pesticides, detergents, sanitizers, or lubricants.

All answers you give in this survey will be kept secure to the extent permitted by law. Your best estimates for product volumes are acceptable.

By **past year** we mean the most recently completed calendar or fiscal year (12 months).

1.5 What is the average livestock slaughter line speed?
Answer in terms of head per hour or per day. If there are multiple lines at different speeds, enter the highest line speed.

- a. _____ head per hour
- b. _____ head per day

1.6 For each HACCP product category listed below, circle “Yes” or No” to indicate whether this establishment produces the product. If “Yes,” provide an estimate of the total pounds produced by this establishment during the **past year**. Some establishments may categorize products differently than shown in the table. Refer to this establishment’s HACCP plan to determine the HACCP product category for the products produced by this establishment.

HACCP Product Category	Example Products	Does Establishment Produce this Product Category?	Annual Production (pounds)
a. Raw, intact (raw not ground)	Whole cuts and steaks, trimmings, mechanically tenderized cuts	Yes No	
b. Raw, non-intact(raw ground)	Ground beef, ground pork, fresh pork sausage, other raw sausages, preformed raw patties	Yes No	
c. Thermally processed, commercially sterile	Canned beef stew, canned pasta with meat, canned chili, baked beans with ham, canned soups, canned Vienna sausages, canned luncheon meat	Yes No	
d. Not heat treated, shelf stable	Fermented sausages, dry sausages, semi-dry sausages, summer sausage, pepperoni, dry salami, uncooked vinegar pickled product	Yes No	
e. Heat treated, shelf stable	Jerky, snack sticks, popped pork skins, cooked vinegar pickled product	Yes No	
f. Fully cooked, not shelf stable	Roast beef, hot dogs, luncheon meats, beef pot pie, burritos	Yes No	
g. Product with secondary inhibitors not shelf stable	Pastrami, corned beef, cured beef tongue, country-style ham, prosciutto	Yes No	
h. Heat treated, but not fully cooked - not shelf stable	Partially cooked meat patties, smoked sausage, bacon	Yes No	

2 Further Processing

By **further processing** we mean all processing beyond slaughter and fabrication.

By **RTE** we mean a product that is edible without additional preparation by the consumer to achieve food safety, but the product may receive additional preparation for taste or appearance purposes.

2.1 Does this establishment currently grind raw meat or **further process** (for example, cook, cure, or smoke) meat products?

1. Yes
2. No **Go to Question 3.1 on page 6**

2.2 What types of further processed food products does this establishment produce? **Circle all that apply.**

1. Shelf stable ready-to-eat (**RTE**) products for consumers
2. Not shelf stable ready-to-eat (**RTE**) products for consumers
3. Raw or partially cooked products for consumers
4. Products that are shipped for further processing to another establishment

2.3 Which of the following practices does this establishment currently use in its further processing operations? **Circle all that apply.**

1. Stipulates practices for controlling pathogens in purchasing specifications for raw meat
2. Stipulates practices for controlling chemical residues (for example, drugs or growth hormones) in purchasing specifications for raw meat
3. Treats drains with sanitizers for pathogen control
4. Uses chemical sanitizers or hot water for sanitizing hand tools such as knives used in further processing areas
5. Rotates sanitizing chemicals it uses in the further processing area per manufacturers label or per scientific advice
6. Treats food contact equipment and surfaces to remove biomatter *during operations*
7. Uses antimicrobial treatments for food contact equipment *during operations*
8. Applies antimicrobial agents to RTE product
9. None of the above

2.4

Which of the following technologies does this establishment currently use in its further processing operations for raw or partially cooked products? **Circle all that apply.**

1. This establishment does not produce raw or partially cooked products
2. Bioluminescent testing system for preoperative sanitation checks (“ATP tests”)
3. Conveyor belts made of materials designed to prevent bacterial growth (for example, coated with silver ions)
4. Foreign material detection (for example, metal detection equipment, x-rays, visual inspection systems)
5. Irradiation equipment
6. High pressure processing
7. Infrared technology
8. Other types of pasteurization processes (for example, steam and hot water treatments, ultraviolet light, microwave processing)
9. None of the above

2.5

Which of the following technologies does this establishment currently use in its further processing operations for RTE products? **Circle all that apply.**

1. This establishment does not produce RTE products
2. Bioluminescent testing system for preoperative sanitation checks (“ATP tests”)
3. Conveyor belts made of materials designed to prevent bacterial growth
4. Foreign material detection (for example, metal detection equipment, x-rays, visual inspection systems)
5. Irradiation equipment
6. High pressure processing
7. Infrared technology
8. Post-packaging pasteurization
9. Other types of pasteurization processes
10. None of the above

3 Microbiological Testing Practices

3.1 In addition to the generic *E. coli* testing of carcasses and *Listeria* testing of ready-to-eat (RTE) products required by FSIS regulation, does this establishment conduct microbiological testing?

1. Yes, using a company-owned lab
2. Yes, using an independent commercial lab
3. Yes, using both company and commercial labs
4. No **Go to Question 3.5 on page 8**

FSIS regulation requires establishments to conduct generic E. coli testing of carcasses and Listeria testing of ready-to-eat (RTE) products. Establishments may conduct other testing of products, equipment, and food contact surfaces that is voluntary. Please answer Questions 3.2–3.5 for voluntary testing that is conducted by this establishment. You may need to consult with other members of your organization or your testing laboratory to answer these questions.

3.2 During the past year, this establishment tested which of the following? **Circle all that apply.**

1. Hides before slaughter
 2. Carcasses before fabrication
 3. Raw meat after fabrication
 4. Lymph nodes
 5. Shelf stable ready-to-eat (**RTE**) products
 6. Not shelf stable ready-to-eat (**RTE**) products
 7. Raw or partially cooked products
 8. Product contact surfaces
 9. Environmental (non-product contact) surfaces
 10. Other (specify)
-
-

By **RTE** we mean a product that is edible without additional preparation by the consumer to achieve food safety, but the product may receive additional preparation for taste or appearance purposes.

By **Non-O157 STEC** we mean a strain of shiga toxin-producing *E.coli* that is not O157:H7. Examples include O26, O103, O111, O121, and O145.

3.3 During the past year, what microbial indicators and pathogens were tested for by this establishment *during slaughter*? **Circle all that apply.**

1. Aerobic plate count (APC)
 2. Total plate count (TPC)
 3. Total coliforms
 4. *E. coli* O157:H7
 5. **Non-O157 STEC**
 6. Virulence genes (stx, eae, uidA, spi)
 7. *Enterobacteriaceae*
 8. Yeasts and molds
 9. *Bacillus cereus*
 10. *Salmonella*
 11. *Staphylococcus aureus*
 12. *Trichinella*
 13. *Toxoplasma gondii*
 14. *Clostridium perfringens*
 15. *Listeria* species
 16. Other (specify)
-
17. None of the above

3.4 During the past year, what microbial indicators and pathogens were tested for by this establishment *during fabrication*? **Circle all that apply.**

By **fabrication** we mean the production of half- or quarter-carcasses, sub-primals, or primals. This does not include ground product.

1. Aerobic plate count (APC)
 2. Total plate count (TPC)
 3. Total coliforms
 4. *E. coli* O157:H7
 5. **Non-O157 STEC**
 6. Virulence genes (stx, eae, uidA, spi)
 7. *Enterobacteriaceae*
 8. Yeasts and molds
 9. *Bacillus cereus*
 10. *Salmonella*
 11. *Staphylococcus aureus*
 12. *Trichinella*
 13. *Toxoplasma gondii*
 14. *Listeria* species
 15. *Clostridium perfringens*
 16. Other (specify)
-
17. None of the above

3.5 What actions does this establishment take when test results indicated that sampled raw product is presumptive positive for *Salmonella* and Shiga Toxin producing *E. coli* (O157:H7 or non-O157 STEC)? **Please check all that apply for each pathogen.**

	<i>Salmonella</i>	Shiga Toxin producing <i>E. coli</i> (O157:H7 or non-O157 STEC)
1. Conduct further testing to confirm positive		
2. Conduct further testing to determine serotype		
3. Divert product to cooking (at this plant)		
4. Destroy product		
5. Re-work product		
6. Sell product into commerce where it will receive a lethality step		
7. Sell product to a processing establishment		
8. Other (specify)		
9. Establishment does not test for this pathogen		

4 Packaging & Labeling

4.1 Does this establishment use any of the following types of modified atmosphere packaging systems? **Circle all that apply.**

1. Vacuum packaging
2. Mixtures of gases
3. None of the above

Your best estimates are acceptable.

4.2 Calculated as a percentage of total production, how were this establishment's meat products packaged and branded during the past year? **Responses should sum to 100%.**

Type of Packaging and Labeling	Type of Branding	Percentage (%)
Packaged and labeled for consumers	a. Name brand (also known as national or regional brand name)	
	b. Store or private label brand	
Packaged and labeled for foodservice	c. Labeled with establishment's own company brand name	
	d. Labeled with another company's brand name (for example, restaurant brand)	
Bulk product for further processing	e. Labeled for further processing	
Other	f. Specify: _____	
Total		100%

4.3 On average, how often does this establishment update its label?

1. At least twice a year
2. About once a year
3. About every 2 years
4. About every 3 years
5. Less frequently than every 3 years
6. Does not update label

By **digital printing** we mean printing directly from a digital image using a laser or inkjet printer and without the use of printing plates.

4.4 What method does this establishment use to print labels or packaging for its products? **Circle all that apply.**

1. By an outside company using printing plates
2. By an outside company using **digital printing**

3. By the establishment or parent company using digital printing
4. Other (specify)

By **special statement or claim** we mean a written statement on the label that relates to the nutrient content of product and its effect on human health, whether product is organic or natural, how the animal was raised, or instructional and disclaimer statements concerning pathogens (e.g., “for cooking only” or “not tested for *E. coli* O157:H7”).

4.5

On the products that are produced and packaged for retail sale at this establishment, what proportion of labels includes one or more **special statements or claims**?

1. This plant does not package products for retail sale
2. None
3. 1 to 25%
4. 26 - 50%
5. 51 - 75%
6. 76 - 100%

5 Employee Training

By **food safety training** we mean training to teach concepts and practices for handling food to control biological, chemical, and physical hazards.

By **newly hired, full time permanent production employees** we mean any full time production employee who has worked at the establishment less than 1 month.

By **formal food safety course** we mean a designed course of study that uses prepared materials and follows a specified outline of content.

By **temporary and part-time production employees** we mean those employees that are hired for temporary periods or part-time to work on the production floor, including seasonal employees.

By **production employees** we mean those employees that work on the production floor, either in supervisory or line positions.

5.1 What **food safety training** is provided for **newly hired, full time permanent production employees** of this establishment? **Circle all that apply.**

1. Written food safety training materials are given to new hires
2. Informal, unscheduled on-the-job food safety training
3. Scheduled on-the-job food safety training conducted by establishment personnel
4. **Formal food safety course** conducted by establishment personnel
5. Formal food safety course administered on a computer at the establishment
6. Formal food safety course conducted by professional trainers
7. None of the above

5.2 What food safety training is provided for **temporary and part-time production employees** of this establishment? **Circle all that apply.**

1. Written food safety training materials are given to temporary hires
2. Informal, unscheduled on-the-job food safety training
3. Scheduled on-the-job food safety training conducted by establishment personnel
4. Formal food safety course conducted by establishment personnel
5. Formal food safety course administered on a computer at the establishment
6. Formal food safety course conducted by professional trainers
7. None of the above

5.3 How many employees were trained in the past year?
Enter zero if none.

|_|_|_|_| newly, hired full time permanent production employees

|_|_|_|_| temporary and newly hired part-time production employees

By **continuing food safety training** we mean training provided periodically to employees that is designed to refresh or extend the initial food safety training the establishment provides to new hires.

5.4 What **continuing food safety training** is provided for production employees of this establishment? **Circle all that apply.**

1. Written refresher materials are given to employees
2. Continuing informal on-the-job food safety training
3. Scheduled on-the-job refresher food safety training conducted by establishment personnel
4. Formal, periodic refresher course work conducted by establishment personnel
5. Formal, periodic refresher course work conducted by professional trainers
6. None of the above

5.5 During the past year, what types of training did permanent employees of this establishment receive?
For each type of employee, check (✓) each type of training that was received.

By **management employees** we mean employees that supervise other employees, including shift managers and line managers.

Type of Training	Type of Employee	
	Management Employees	Production Employees
a. HACCP		
b. Sanitation Standard Operating Procedures (SSOPs)		
c. Humane handling		
d. Recall procedures		
e. Quality control		
f. Records and documentation		
g. Lock out/tag out (LOTO)		
h. Food defense		
i. Sampling procedures		
j. Sanitary dressing		
k. Good Manufacturing Practices (GMPs)		
l. Allergens		

5.7 During the past year, what FSIS resources did this establishment use for training? **Circle all that apply.**

1. None
 2. FSIS Web site
 3. CDs/DVDs produced by FSIS
 4. FSIS-sponsored workshops/webinars
 5. FSIS notices and directives
 6. Compliance guidelines
 7. Other FSIS resources (specify)
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By **guidance documents** we mean documents prepared by FSIS to assist establishments with compliance. For example, FSIS has guidance documents that describe how to develop and implement sanitation procedures, how to meet sampling and microbial testing requirements, how to meet validation requirements, etc. They can be found at <http://www.fsis.usda.gov/v/wps/portal/fsis/topics/regulatory-compliance/compliance-guides-index>

5.8 When does your establishment use FSIS compliance **guidance documents**? **Circle all that apply.**

1. During the validation of HACCP systems
 2. During the verification of HACCP systems
 3. During the development of Sanitation Standard Operating Procedures (SSOPs)
 4. Upon receipt of a noncompliance record (NR)
 5. Before/during a food safety assessment (FSA)
 6. During the training of employees
 7. Other (specify)
-
-

6 Establishment Characteristics

- 6.1** What is the approximate percentage of the square footage of the production space of this establishment that is under 5 years old, 5 years to just under 20 years old, or 20 years old or more? **Responses should sum to 100 percent.**

Age Category	Percentage of Production Space (%)
a. Under 5 years old	
b. 5 years to just under 20 years old	
c. 20 years old or more	
Total	100%

By **audits** we mean review and verification of the establishment's processes by independent, third-party auditors.

- 6.2** Who conducts independent, third-party **audits** of this establishment's food safety procedures? **Circle all that apply.**
1. This establishment's food safety procedures are not audited by independent, third-party auditors
 2. Independent, third-party auditors that are hired by this establishment or by corporate headquarters
 3. Independent, third-party auditors that are hired by customers of this establishment
 4. Customers of this establishment (for example, food service, military)
 5. None of the above

6.3 When independent, third party audits are conducted, which practices are audited? **Circle all that apply.**

1. Microbiological testing
2. Residue testing
3. Humane handling
4. Sanitary dressing
5. Fabrication
6. Further processing
7. HACCP system
8. Good Manufacturing Practices (GMPs)
9. Sanitation Standard Operating Procedures (SSOPs)
10. Food defense
11. Other (specify)

12. None

6.4 Who conducts independent, third-party **audits** of this establishment's humane handling procedures? **Circle all that apply.**

1. This establishment's humane handling procedures are not audited by independent, third-party auditors
2. Independent, third-party auditors that are hired by this establishment or by corporate headquarters
3. Independent, third-party auditors that are hired by customers of this establishment
4. Customers of this establishment (for example, food service, military)
5. None of the above

By **certification** we mean an accredited third party visits an organization, assesses its management and production system, and issues a certificate to show that the organization abides by the principles set out in the standard.

6.5 What **certifications** are required by customers of this establishment? **Circle all that apply.**

1. None
2. Global Food Safety Initiative (GFSI) (includes ISO 22000, BRC, IFS, Dutch HACCP, and SQF)
3. Customer-specified requirements
4. Organic certification
5. Other (specify)

By **cleaned** we mean removing soil (including food residue) from equipment, utensils, or other surfaces, usually by suspending the soil in water with the aid of a detergent. Cleaning is different from sanitizing (the reduction of bacterial contaminants to safe levels) and from disinfecting (freeing from infectious microorganisms, typically with the aid of chemicals).

6.6 Is the slaughter area of this establishment **cleaned** during each production shift? **Circle all that apply.**

1. No
2. Yes, it is cleaned between species changes
3. Yes, it is cleaned at the end of the shift
4. Yes, it is cleaned mid-shift

6.7 Does this establishment operate a separate clean-up shift for the slaughter area after the production shift is done? **Circle all that apply.**

1. No
2. Yes, performed by establishment personnel
3. Yes, performed by contractors

6.8 Is the fabrication area of this establishment cleaned during each production shift? **Circle all that apply.**

1. No
2. Yes, it is cleaned between product type changes
3. Yes, it is cleaned at the end of the shift
4. Yes, it is cleaned mid-shift

6.9 Does this establishment operate a separate clean-up shift for the fabrication area after the production shift is done? **Circle all that apply.**

1. No
2. Yes, performed by establishment personnel
3. Yes, performed by contractors

6.10 Approximately how many production employees are employed at this establishment? **Provide an average number over the past year for each type of employee. If none, enter zero.**

- a. Full-time employees |_|_|_|_|_|
- b. **Part-time** employees |_|_|_|_|_|
- c. Temporary employees |_|_|_|_|_|

By **part time** we mean working fewer than 30 hours per week.

6.11 Approximately how many laboratory employees are employed by this establishment? **Provide an average number of full-time employees over the past year. Do not include personnel employed by third-party labs that work onsite at the plant.**

a. Full-time employees |_|_|_|_|_|

6.12 Approximately how many full-time employees at this establishment work in a quality control/quality assurance (QC/QA) department, including food safety?

1. None **Go to Question 6.14**
2. 1 to 5
3. 6 to 10
4. 11 or more

6.13 For the person who manages the QC/QA department, what percentage of their time is devoted to managing QC/QA activities?

1. 1 to 24 percent
2. 25 to 49 percent
3. 50 to 74 percent
4. 75 to 99 percent
5. 100 percent

6.14 To the best of your knowledge, what percentage of live animals slaughtered at this establishment during the past year was **imported**?

1. None
2. 1 to 9 percent
3. 10 to 24 percent
4. 25 to 49 percent
5. 50 to 100 percent

By **imported** we mean animals born or raised in another country and then transported to the United States.

6.15 What percentage of this establishment's product is exported outside of the United States?

1. None
2. 1 to 24 percent
3. 25 to 49 percent
4. 50 to 74 percent
5. 75 to 100 percent

By **crisis management** we mean the process by which an organization deals with a major unpredictable event such as a voluntary food safety recall of products or a severe weather event.

6.16 Which of the following traceability practices does this establishment currently use in its operations? **Circle all that apply.**

1. Identifies and tracks its products using a traceable code, by production lot, backward to specific animal supplier
2. Identifies and tracks its products using a traceable code, by production lot, forward to specific customers
3. None of the above

6.17 Which of the following food recall and **crisis management** practices does this establishment currently use in its operations? **Circle all that apply.**

1. Conducts mock recalls of lot codes delivered to specific customers
 2. Conducts mock recalls of lot codes backwards to raw material suppliers
 3. Documents mock recall exercises and conducts a self assessment
 4. Has a written crisis management program beyond the scope of product recalls
 5. Conducts crisis management exercises
 6. Has recall insurance
 7. Has business continuity plan
 8. None of the above
 9. Other (specify)
-
-

All answers you give in this survey will be kept secure to the extent permitted by law. Your best estimates for sales are acceptable.

6.18 What was the approximate value of total establishment sales revenue during the past year?

1. Under \$249,999
2. \$250,000 to \$499,999
3. \$500,000 to \$1.49 million
4. \$1.5 million to \$2.49 million
5. \$2.5 million to \$24.9 million
6. \$25 million to \$49.9 million
7. \$50 million to \$99.9 million
8. \$100 million to \$249.9 million
9. \$250 million to \$499.9 million
10. \$500 million or more

By **upgrades** we mean the investment in replacement or updated facilities and equipment.

6.19 During the past year, what was the estimated level of investment in **upgrades** and expansions of plant facilities and equipment as a share of sales?

1. 0-5%
2. 6-10%
3. 11-15%
4. 16-20
5. 21% or more

6.20 During the past year, what portion of the total investment in upgrades and expansions of plant facilities and equipment was related to food safety?

1. 0-10%
2. 11-25%
3. 26-50%
4. 51% or more

Thank you for completing the survey.