United States General Accounting Office

GAO

Report to Congressional Committees

December 1999

MEAT AND POULTRY

Improved Oversight and Training Will Strengthen New Food Safety System

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GAO/RCED-00-16

GAO

United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-283823

December 8, 1999

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Ranking Minority Member
Subcommittee on Agriculture, Rural Development,
and Related Agencies
Committee on Appropriations
United States Senate

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and Related Agencies
Committee on Appropriations
House of Representatives

Food contamination may cause an estimated 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths in the United States each year, according to the Centers for Disease Control and Prevention. The U.S. Department of Agriculture (USDA) estimates that the costs associated with foodborne illnesses are as high as $37 billion annually. To reduce foodborne illnesses and improve the safety of meat and poultry products, USDA issued regulations in July 1996 requiring that by January 2000 all meat and poultry plants adopt a science-based production control system called Hazard Analysis and Critical Control Point (HACCP). The HACCP program is designed to identify the steps in food production where contamination is most likely to occur and then to establish controls that prevent or reduce contamination. The HACCP regulations also require that meat and poultry slaughter plants regularly test for E-coli bacteria to verify that their controls are sufficient to prevent fecal contamination. In addition, USDA's Food Safety and Inspection Service (FSIS) tests for salmonella at plants that produce raw and ground meat and poultry products to determine whether they are meeting USDA's salmonella pathogen reduction performance standards.

The mandatory implementation of HACCP systems fundamentally changes the government's approach to ensuring the safety of meat and poultry

products: It makes industry, not government, primarily responsible for the safety of these products. Moreover, industry has to implement HACCP systems that identify and control biological, physical, and chemical hazards throughout production. HACCP systems are designed to improve USDA's traditional inspections, which use sight, touch, and smell to detect contaminated products. USDA inspectors based at meat and poultry plants are responsible for overseeing the plants' implementation of their HACCP systems.

The HACCP approach, which was recommended by USDA's National Advisory Committee on Microbiological Criteria for Foods and endorsed by the scientific community, is based on seven guiding principles. The principles center around the identification of biological, physical, and chemical hazards that are reasonably likely to occur in meat and poultry plants and the establishment of critical points in the production process where controls can be applied to prevent, eliminate, or reduce those hazards.

Concerned about HACCP implementation, the Congress mandated that GAO (1) determine whether the system adopted by USDA in its regulations is consistent with the seven HACCP principles endorsed by the Advisory Committee, (2) evaluate whether the HACCP training program for USDA inspectors is adequate and science-based, and (3) determine if there is an adequate dispute resolution (appeals) process between plants and USDA under the new HACCP inspection system.

As part of our review, we compared the HACCP principles endorsed by the Advisory Committee with those included in the HACCP regulations and visited 32 meat and poultry plants (out of about 2,600 that have implemented HACCP programs) across the country to determine how the principles were applied in their HACCP plans. We did not evaluate the plants' hazard analyses or how well they were implementing their HACCP plans. The selected plants produce a variety of meat and poultry products through a number of different processes. To evaluate HACCP training for USDA inspectors, we reviewed USDA's HACCP training curriculum, participated in USDA's HACCP training program, reviewed and analyzed evaluations of training conducted by industry and by USDA, and conducted our own nationwide telephone survey of inspectors most recently trained in the HACCP system. (App. I presents the results of this survey.) We also reviewed the regulations concerning appeals and interviewed industry and inspection personnel to obtain their opinions on how well the appeals process is working. Appendix II describes our methodology in detail.

Results in Brief

USDA's HACCP regulations, along with implementing directives and other guidance, are consistent with the seven HACCP principles endorsed by the Advisory Committee. The 32 plants we visited have HACCP plans that are based on the principles; however, some plant managers excluded certain hazards (such as metal contamination) because they believed that existing quality control programs or good manufacturing practices (such as routinely calibrating production equipment) effectively controlled them. To ensure appropriate verification and oversight by USDA inspection personnel, however, the regulations state that plants must identify all hazards reasonably likely to occur in their HACCP plans and control those hazards through their HACCP programs. USDA regulations preclude the use of non-HACCP programs to control hazards that are reasonably likely to occur because the Department's inspectors focus on ensuring compliance with HACCP regulations and have limited oversight over non-HACCP programs.

Generally, inspectors received the training needed to oversee plants' implementation of HACCP programs, although many inspectors responding to our nationwide survey reported that they would benefit from refresher courses. USDA's training program provided a basic introduction to HACCP's science-based principles while emphasizing the compliance aspects of the inspectors' HACCP duties. However, according to our review of USDA's HACCP training curriculum and the results of our survey, several aspects of the training program need to be clarified and reinforced in order to provide inspectors with the tools they need to conduct consistent and effective inspections of plants' compliance with HACCP requirements. Many survey responses suggested that the training was unclear about (1) inspectors' authority to request that plants make changes to their HACCP plans, (2) the correct frequency for microbial testing for salmonella, (3) the actions inspectors can take if they become aware of microbial contamination that a plant has identified as a hazard through programs that are outside of its HACCP plan, and (4) situations in which it is appropriate for inspectors to record instances of noncompliance with the HACCP requirements by issuing noncompliance notices (referred to as noncompliance records by FSIS). USDA's own evaluation of inspectors' training in 1998 identified areas of training that should be strengthened.

USDA's dispute resolution process provides industry with an appropriate mechanism to appeal inspectors' enforcement actions. All of the plant managers we interviewed were generally aware of how the process worked, and many had used it to appeal inspectors' findings and decisions that, in their opinion, were erroneous. These managers questioned the

accuracy of the information contained in the documents that inspectors prepare when they believe that a plant has failed to comply with one or more of the HACCP requirements. For example, managers said that inspectors at times document instances of noncompliance by citing incorrect regulations or marking the wrong trend indicators. Plant managers said that they follow the advice of industry associations, such as the National Meat Association, and appeal noncompliance notices that appear to be inaccurate. Recurring instances of noncompliance can result in an FSIS determination that the plant's HACCP system failed. However, USDA regulations do not explicitly state the number or types of noncompliance notices that can result in such a determination. Therefore, plant personnel want to ensure that these notices of noncompliance are justified and accurately documented. We could not verify the accuracy of the plant managers' observations because USDA's new automated appeals tracking system contains incomplete and inconsistent information. This report contains a number of recommendations to the Secretary of Agriculture designed to improve the HACCP plans, improve inspector training, and ensure the reliability of information on plant appeals.

Background

For over a decade, scientific studies have highlighted the need for a new approach to ensure food safety. In 1983 and again in 1987, the National Academy of Sciences reported on the need for improved methods that focused on the prevention and reduction of microbial pathogens. The Academy and other organizations, including GAO, endorsed the HACCP approach as an effective tool for preventing and/or reducing hazards in the food supply. Following the recommendation of the National Advisory Committee on Microbiological Criteria for Foods,[1] USDA issued the Pathogen Reduction and HACCP rule in July 1996. The rule establishes requirements for meat and poultry plants to reduce the occurrence of pathogenic microorganisms in their products, reduce the incidence of foodborne illness associated with meat and poultry products, and provide a new framework for the modernization of the current system of meat and poultry inspection. The HACCP rule applies to all federally and state-inspected meat and poultry slaughter and processing plants in the United States. Table 1 summarizes the implementation schedule for these plants. In USDA, FSIS has overall responsibility for overseeing HACCP implementation. Within FSIS, the Office of Field Operations oversees 18

[1]This committee provides scientific advice and recommendations to the Secretaries of Agriculture, Commerce, Defense, and Health and Human Services.

district offices throughout the country that conduct inspection and enforcement operations.[2]

Table 1: HACCP Implementation Schedule for Meat and Poultry Plants

Plant size	Number of plants	Implementation date
Large plants (500 employees or more)	Approximately 300 plants	January 1998
Small plants (between 10 and 499 employees)	Approximately 2,300 plants	January 1999
Very small plants (less than 10 employees or annual sales of less than $2.5 million)	Approximately 3,300 plants	January 2000

To prepare its inspectors for their new responsibilities under the HACCP rule, FSIS developed an 8-day HACCP training course. As of February 1999, about 4,100 inspectors (out of a total of about 4,500 to be trained in the HACCP program) had participated in the course. Two USDA facilitators—one representing FSIS management and one representing the inspectors' union—led the training courses. The courses were offered on a "just-in-time" basis to coincide with the 3-year HACCP implementation schedule. The facilitators followed a carefully scripted program, consisting primarily of videos as a teaching tool, to ensure consistency among the classes given in different locations.

USDA's Rules Embody HACCP Principles, but Some Plants Rely on Other Programs to Control Hazards

USDA's final HACCP rules embody the seven HACCP principles endorsed by the Advisory Committee. While the HACCP plans we reviewed during our visits to 32 plants were based on these principles, many were at odds with USDA regulations requiring that HACCP plans be self-contained documents. USDA regulations require that all food safety hazards that are reasonably likely to occur must be controlled through their HACCP plans so that inspectors can verify that critical limits are being met and that corrective actions are effective when those limits are exceeded. When hazards are controlled through non-HACCP programs, USDA's ability to monitor the production of safe food is limited.

USDA Regulations Adopt Advisory Committee's HACCP Principles

As early as 1989, the Advisory Committee endorsed HACCP as an effective and rational approach to ensuring the safety of meat and poultry products—one that stresses preventing contamination before it occurs rather than dealing with it after it is detected. The Advisory Committee 's

[2]At the time of our review, FSIS Field Operations had 18 district offices. Subsequently, FSIS reorganized its field operations into 17 district offices. Throughout this report, however, information on appeals and survey responses is based on the 18-district office structure.

HACCP Principles and Application Guidelines served as the source document for USDA's July 1996 HACCP implementing regulation: Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems.[3] Our analysis of USDA regulations and the Advisory Committee's HACCP guidelines found little if any deviation from the Advisory Committee's seven HACCP principles. Table 2 summarizes these principles.

Table 2: Seven HACCP Principles

Principle	Description
Principle 1: Conduct a hazard analysis.	Plants determine the food safety hazards that are reasonably likely to occur and identify the preventive measures they will apply to control these hazards. Hazards can be biological, chemical, or physical.
Principle 2: Identify critical control points.	Plants identify a point, step, or procedure in a food production process where controls can be applied to prevent, eliminate, or reduce a food safety hazard to an acceptable level.
Principle 3: Establish critical limits for each critical control point.	Plants set the maximum or minimum value at which a biological, chemical, or physical hazard must be controlled at each critical control point to prevent, eliminate, or reduce the food safety hazard to an acceptable level.
Principle 4: Establish monitoring requirements.	Plants establish monitoring activities that will ensure the process is under control at each critical control point.
Principle 5: Establish corrective actions.	Plants define actions to be taken when monitoring discloses a deviation from an established critical limit.
Principle 6: Establish record-keeping procedures.	Plants are required to maintain documentation of their hazard analysis and HACCP plan, as well as records documenting the monitoring of critical control points, critical limits, verification activities, and the handling of processing deviations.
Principle 7: Establish verification procedures.	Plants establish verification procedures to ensure that HACCP plans accomplish their intended goal—ensuring the production of safe products.

The HACCP regulations require plants to address each of the seven principles during the development of their HACCP plans. A food safety hazard that is reasonably likely to occur is one for which a meat or poultry plant would establish controls because the hazard has occurred in the past or because there is a reasonable possibility that it will occur in the absence of those controls. Table 3 describes the three types of hazards that may occur in meat and poultry plants.

[3]9 CFR Part 304, et al.

Table 3: Biological, Chemical, and Physical Hazards

Type of hazard	Definition
Biological	Living organisms that can put human health at risk: bacteria, parasites, protozoa, and viruses. Some of the major organisms that can cause foodborne illness from eating meat and poultry products are salmonella,listeria, campylobacter, and E.coli 0157:H7.
Chemical	Naturally occurring substances, such as aflatoxins and mycotoxins, and added substances, such as pesticides, fungicides, fertilizers, lubricants, or cleaners.
Physical	Foreign materials not normally found in a food product that can cause illness or injury, such as glass, metal, and plastic.

Since publishing its HACCP regulations in July 1996, USDA has issued several clarifications and modifications, including a requirement that all HACCP plans must contain at least one critical control point and must be self-contained documents that do not reference good manufacturing practices as mechanisms for controlling hazards.

In addition to requiring the development of HACCP plans, plants must comply with the following other requirements of the regulations:

- Plants must develop and implement written Sanitation Standard Operating Procedures as a prerequisite to HACCP implementation.[4]
- Slaughter plants must regularly test for the presence of E. coli bacteria to verify the adequacy of their process controls for preventing and removing fecal contamination and associated bacteria.
- Plants that produce raw or ground beef, raw or ground chicken, ground turkey, or raw pork products must meet certain pathogen reduction performance standards for salmonella. This provision sets targets for reducing the incidence of salmonella contamination and requires that products sampled and tested for salmonella not test positive at rates exceeding the standard for each class of product. For example, the maximum number of positive tests allowed per 55 hogs tested are 6 (or 8.7 percent), while the maximum number allowed per 51 chickens is 12 (or 20 percent). The salmonella performance standards provide a substantive basis for judging the effectiveness of HACCP programs, according to USDA.

In its totality, USDA's HACCP regulatory framework exceeds the requirements of the seven principles of the HACCP approach as endorsed by the Advisory Committee.

[4]These procedures describe all sanitation procedures that meat and poultry plants conduct before and during daily operations to prevent direct contamination of their products.

HACCP Plans Follow Seven Principles, but Some Plants Control Hazards Through Mechanisms Other Than HACCP

In our on-site review of 57 HACCP plans at 32 plants, we found that each plan was developed using the seven principles and included at least one critical control point for controlling biological hazards.[5] Because HACCP plans are proprietary documents, many of the plants did not authorize us to make copies of their HACCP plans for further analysis.[6] However, according to our analysis of the 28 plans that we were allowed to study in detail, 13 contained statements indicating that a particular food safety hazard was not reasonably likely to occur because it was controlled through good manufacturing practices. Thus, these HACCP plans were not the self-contained documents that USDA has required since January 1998. For example, one plan included a statement that microbial hazards were not reasonably likely to occur during product storage because the storage temperature and condition of the coolers was sufficiently controlled through good manufacturing practices.

USDA inspectors do not have the authority to approve HACCP plans. They have only the authority to verify that the plans establish critical control points for controlling the food safety hazards that plants identified during the hazard analysis phase of developing their HACCP plans. Some inspectors told us that they cannot verify other control mechanisms, such as good manufacturing practices, even though they are referenced in the plant's HACCP plans. When inspectors learn that plants are referring to good manufacturing practices in their HACCP plans, they are instructed to refer these cases to FSIS district management for further review. District managers can then request the plants to reassess their HACCP plans within 30 days to bring them into compliance with HACCP requirements. However, USDA directed the plants to reassess only one of the 13 HACCP plans that we had identified as making reference to good manufacturing practices.

Furthermore, plant managers representing 12 of the 32 plants we visited told us that they identified and controlled one or more food safety hazards through process control mechanisms other than their HACCP plans. For example, some managers said they have metal detectors to control the incidence of metal contamination in their products; however, they elected not to include those in their HACCP plans. Other managers reported controlling the condition and temperature of the incoming product, the final shipment temperature, and chemical contamination through total quality control programs and good manufacturing practices. One manager told us that his plant had originally included several critical control points

[5]The regulations state that plants may have one or more HACCP plans addressing various production processes or products. Accordingly, some of the 32 plants we visited had more than one HACCP plan.

[6]All 32 plants allowed us to look at their HACCP plans during our visits. In total, we reviewed 57 plans.

in its HACCP plan, but because USDA inspectors were finding too many instances of noncompliance, the control points were moved to the plant's overall quality control program. Another manager said that he controls the temperature of all products awaiting shipment from his plant through good manufacturing practices because doing so under the plant's HACCP plan would require a large amount of time-consuming paperwork and would require the plant to include the control in its pre-shipment reviews.

Plants may be opting to control some hazards through programs other than HACCP systems in part because of the National Advisory Committee and the industry's support of the use of such an approach. The Advisory Committee maintains that the production of safe food products requires a HACCP system to be built on a solid foundation of other control programs, such as good manufacturing practices, quality control programs, and standard operating procedures. It further states that such programs are often proprietary and established and managed separately from a HACCP plan. Industry supports the use of good manufacturing practices to control hazards that are reasonably likely to occur. For example, industry representatives said that in a facility with well-functioning prerequisite programs that control product temperature, bacteriological hazards are not likely to occur and thus should be excluded from a HACCP plan. On the other hand, industry representatives acknowledge that in a facility without such prerequisite programs or where such programs are not well managed, the loss of temperature control could allow the growth of microbiological hazards that can be better managed through a HACCP plan.

USDA recognizes the usefulness of prerequisite programs, such as quality control programs and good manufacturing practices, in the production of safe products. However, USDA maintains that to ensure the effective oversight of HACCP systems, it must be able to verify plants' compliance with HACCP regulations, and inspectors cannot verify non-HACCP plans. Therefore, USDA requires plants to identify and control through their HACCP plans all hazards reasonably likely to occur. HACCP plans that refer to such programs as good manufacturing practices limit federal oversight and thus are not in compliance with the regulations.

Inspectors Generally Reported Satisfaction With HACCP Training but Also Identified Weaknesses

According to USDA inspectors and our review of the training materials, inspectors generally received the training they needed to verify that meat and poultry plants comply with HACCP principles. In addition, their training provided a basic introduction to the scientific principles of the HACCP approach while focusing on the compliance aspects of their duties. Nearly two-thirds (65 percent) of the inspectors responding to our survey indicated that the training they received adequately prepared them for their HACCP duties; however, as many inspectors also indicated that they would benefit from refresher courses. Survey responses also identified training weaknesses in the following areas: (1) inspectors' authority to ask for changes to a plant's HACCP plan, (2) frequency of salmonella sample collections, (3) inspectors' authority to take action when a plant's microbial testing program not cited in the plant's HACCP plan detects contamination, and (4) inspectors' issuance of noncompliance notices. In its 1998 evaluation of inspection activities during the first phase of HACCP implementation, USDA also identified areas of training that should be strengthened.[7]

Inspectors' Training Emphasizes Compliance

The HACCP system shifts the responsibility for ensuring the safety of meat and poultry products from USDA to industry. Therefore, HACCP training programs for industry and for USDA inspectors reflect their different roles and responsibilities. The regulations require that plant managers in charge of HACCP operations be trained in the application of the seven HACCP principles, including the development of a HACCP plan. USDA's role, on the other hand, is to ensure that plants comply with HACCP regulations. Thus, the Department's inspector training emphasizes compliance rather than the development and implementation of HACCP plans.

In 1994, the International HACCP Alliance was formed to help the meat and poultry industry prepare for HACCP implementation by, among other things, standardizing HACCP training for plant personnel.[8] The Alliance is not involved in training; rather, it reviews and approves HACCP training curricula before accrediting other organizations' training programs. The curriculum for industry includes courses on how to recognize the relationship between the HACCP principles and food safety; how to identify and control hazards; how to design control measures to prevent, reduce, or minimize hazards; and how to identify critical control points using valid

[7]Evaluation of Inspection Activities During Phase One of HACCP Implementation, Food Safety and Inspection Service, United States Department of Agriculture, July 1998.

[8]The HACCP Alliance includes over 100 members from industry associations, educational foundations, professional societies, universities, government agencies and related private companies.

scientific criteria. Individuals who complete an Alliance course are said to be HACCP-certified, although there is no requirement for such certification in the HACCP regulations. Nor is there a requirement for industry HACCP personnel to provide proof of such training to USDA inspection personnel.

In contrast with industry's training, USDA's training of its inspection workforce is in-house, and its program focuses on how inspectors verify plants' compliance with their HACCP plans. Because the inspectors' responsibilities under the HACCP regulations are to document breakdowns in plant-established controls, their training includes only an introduction to the science-based HACCP principles; it does not stress the scientific basis behind hazard analyses, critical control points, and critical limits. Of the 12 separate modules offered in USDA's HACCP training program, only one covers the science-based HACCP principles.

USDA Inspectors Were Generally Satisfied With Training but Identified Some Weaknesses

Nearly two-thirds of the respondents to our nationwide survey rated their overall preparation for work as HACCP inspectors after training as good or excellent, while as many said that they would benefit from refresher courses. Over two-thirds rated their course facilitators as good or excellent, and more than half said that the training was provided just in time. However, only 28 percent of the respondents said that the real-life examples used during training were very useful.

To examine in more detail the strengths and weaknesses of USDA's training, we asked inspectors to rate their understanding of several specific HACCP concepts addressed in training. Most respondents (81 to 85 percent) rated their understanding of various aspects of the microbial testing required by the HACCP regulations as good or excellent. However, fewer respondents (53 to 59 percent) rated their understanding of how to recognize a HACCP system failure and how HACCP plans are developed as good or excellent. Table 4 summarizes the inspectors' responses to these questions.

Table 4: Understanding HACCP Concepts Discussed in Training

Understanding of HACCP concepts rated "good" to "excellent"	Percent
The proper method for E. coli sampling	85
The proper method for salmonella sampling	85
The purpose of collecting E. coli and salmonella samples	84
Inspectors' responsibilities regarding salmonella sampling	82
Inspectors' responsibilities regarding E. coli sampling	81
The difference between the old inspection system and the new HACCP system	72
What it means to verify a HACCP plan	63
The difference between the old and the new Performance-Based Inspection System	63
The changes in standard sanitation operating procedures inspections	62
The difference between basic inspections and system inspections	61
How to recognize a HACCP system failure	59
How plants develop their HACCP plans	53

Note: 161 inspectors responded to these questions.

We also asked the inspectors to rate their preparation for performing specific HACCP-based inspection tasks after their training. Over three-quarters of the respondents (77 percent) reported that their preparation for conducting day-to-day HACCP compliance activities was good to excellent, but fewer (56 percent) said that their preparation for using the appropriate trend indicators was good to excellent. USDA uses trend indicators to categorize the specific types of noncompliance identified by inspectors in HACCP plants. For example, if an inspection procedure revealed that a plant employee had not initialed and dated an entry on a record required by the HACCP plan, the inspector would mark the record-keeping trend indicator on the noncompliance record. USDA also uses trend indicators to determine whether additional regulatory or administrative actions should be taken. Table 5 summarizes the inspectors' responses to the group of questions dealing with preparation for HACCP duties after training.

Table 5: Preparation for HACCP Duties After Training

Preparation for HACCP duties rated as "good" to "excellent"	Percent
Day-to-day verification of plant compliance	77
The resources to use if uncertain about HACCP principles	77
Taking action in cases of noncompliance	70
Verifying that the HACCP plan complies with requirements	69
Handling disputes over noncompliance notices	68
Tracking changes to the HACCP plan	63
Responding to appeals by plants	61
Overseeing plants' testing for E. coli	59
Using trend indicators when issuing noncompliance notices	56

Note: 161 inspectors responded to these questions.

Inspectors' responses to another set of questions showed a significant degree of confusion. We asked inspectors about three specific situations covered in training that appeared to be unclear or ambiguous in the HACCP courses we attended. In each case, we asked the inspectors to select the response closest to what they had learned in training. Furthermore, we asked the FSIS Technical Services Center to provide us with what it considers to be the correct response to each of the questions.[9] The following summarizes the inspectors' responses to the three questions and the percent that selected the correct answer to each question, according to the Technical Services Center:

- Are inspectors allowed to ask for changes to the HACCP plan when they conduct basic HACCP compliance procedures? According to the Technical Services Center, the correct response is that inspectors are not allowed to request plants to make changes to their HACCP plans, even if they believe changes are necessary. Sixty-one percent of the respondents to our survey selected the correct response, 21 percent said that inspectors are allowed to ask for changes, and 17 percent were uncertain. In total, about one-third of the respondents were uncertain or provided the incorrect response to this question.
- How frequently should inspectors collect salmonella samples at the plant after being notified by their USDA district management office to begin taking samples? According to the Technical Services Center, the correct answer is that salmonella samples should be collected every day the

[9]In June 1997, FSIS established the Technical Service Center to provide accurate and consistent information regarding the development and implementation of inspection programs to inspection personnel and industry.

product is produced. Sixty-five percent of the respondents to our survey selected the correct response, 12 percent said "as time permits," and 20 percent were uncertain. In total, about one-third of the respondents provided the incorrect answer to this question or were uncertain.

- Are inspectors allowed to take action if they become aware of microbial contamination identified through testing programs (other than E.coli and salmonella) that are not part of the HACCP plans? According to the Technical Services Center, the correct answer is that inspectors have the authority to take whatever action they deem necessary when they suspect product contamination, whether or not the plant has included testing for microbiological hazards (other than E-coli and salmonella) in its HACCP plan. Thirty-two percent of the respondents selected the correct response, 44 percent selected the incorrect response, and 21 percent were uncertain. Nearly two-thirds (65 percent) of the respondents gave the incorrect answer or were uncertain.

In summary, the responses to these three questions indicate considerable confusion about these aspects of an inspector's HACCP duties. For example, only 13 percent of the inspectors selected the responses that the Center provided as the correct answers to all three questions, and one-third provided the correct response to only one of the three questions.

There is also confusion concerning how the training program that inspectors attended addressed their responsibilities for HACCP compliance. Specifically, we asked the inspectors whether they were taught to (1) issue a noncompliance record as soon as a noncompliance is detected or (2) allow the HACCP system to work first. Recording instances of noncompliance with HACCP systems is a very important aspect of the inspectors' duties, and the training courses we attended suggested that inspectors should allow the HACCP system to work first. However, the Technical Services Center said that there is no definitive answer.[10] Accordingly, the inspectors responses varied—67 percent said they should give a HACCP system a chance to work first in a noncompliance situation, 25 percent said they should issue a noncompliance record immediately when noticing a noncompliance with HACCP requirements, and 8 percent were either uncertain or had other responses.

[10]The Technical Services Center told us that there is no definitive response to this question, and other FSIS officials said that the answer depends on the type of HACCP inspection being conducted. That is, if inspectors conducting a basic verification procedure find an instance of noncompliance, they should immediately take action. On the other hand, when conducting a procedure to verify an entire HACCP system, inspectors should allow the HACCP system to work first.

During our plant visits, inspectors recommended that HACCP training place more emphasis on when and how to prepare noncompliance notices and how to use noncompliance trend indicators. Plant managers also frequently stated that inspectors should do a better job of documenting instances of noncompliance and selecting the appropriate trend indicators for each instance. Finally, a 1998 USDA evaluation of HACCP implementation pointed out that inspection personnel expressed a need for further understanding of how to use trend indicators. Appendix I presents inspectors' responses to our nationwide survey.

Dispute Resolution Process Is Working, but the Tracking System Has Certain Weaknesses

The appeals process under the HACCP regulations for plants charged with noncompliance appears to provide an adequate avenue of redress. The plant managers and inspectors we interviewed generally knew how the process worked. However, about half of the plant managers had concerns about the accuracy of the information contained in the inspectors' noncompliance notices and said that they tend to appeal noncompliance findings they believe are inaccurate. We could not determine the nature and extent of these appeals because FSIS' Industry Appeals Tracking System lacks complete and consistent data.

Appeals Process Under HACCP Regulations Appears Adequate

Inspectors are required to issue noncompliance notices to plants failing to comply with HACCP regulations. Multiple, recurring findings of noncompliance without successful interventions to correct a problem can result in additional enforcement actions, such as the suspension of inspection, which could result in slowing production or shutting down the plant.

The right to appeal enforcement actions and the process for making such appeals have not changed since the HACCP regulations were implemented, and, as before, the existing mechanism provides plants "due process" as required by law. That is, the plants have an avenue to appeal enforcement actions that they believe are incorrect. The regulations give the plants the right to appeal inspectors' findings and decisions orally or in writing.[11] An appeal must first be submitted to the inspector with the most immediate jurisdiction over the appeal–in most cases, the inspector-in-charge. If an appeal is rejected at this level, the plant can appeal further through the FSIS chain of command—circuit supervisor, district manager, Assistant Deputy Administrator for District Inspection Operations, and Deputy Administrator for the Office of Field Operations. All of the inspectors and

[11] 9 CFR 306.5 and 9 CFR 381.35.

plant officials we interviewed were aware of their plants' right to appeal, and almost all were familiar with the process and how it works. FSIS officials and inspectors said that with the implementation of HACCP requirements, FSIS has made a concerted effort to inform plants of their right to appeal enforcement actions and the process for doing so.

While the appeals procedures have not changed under the HACCP regulations, some inspectors and plant officials perceived that the process is more formal now than it used to be. For example, several managers told us that under the old inspection system, plants generally made oral appeals, but now because of FSIS' preference, plants generally submit written appeals. Similarly, inspectors said they used to explain orally why an appeal was rejected or granted, but now they are encouraged to provide plants with written explanations.

Concerns Over Inaccurate Noncompliance Notices Result in Plant Appeals

When issuing noncompliance notices, inspectors are required, among other things, to cite the applicable regulation that was violated and to identify the trend indicator that specifies the type of noncompliance observed. Inspectors review noncompliance notices periodically to identify noncompliance trends, such as a plant's repeatedly failing to monitor a critical control point or repeatedly failing to take effective corrective actions. However, about half of the 32 plant managers we interviewed expressed concerns about the accuracy of the information contained in the noncompliance notices issued to their plants. Some managers also told us that inspectors often issue noncompliance notices for violations that are in the process of being corrected, as outlined in their HACCP corrective action plans, before the corrective action had a chance to work.

Accurately prepared noncompliance notices are essential because USDA uses trend data to decide whether additional enforcement action at a plant is necessary. Plant managers are concerned because USDA has not issued guidance on the use of trend data or clarified how many instances of noncompliance would result in a plant's being shut down. Accordingly, 17 plant managers said they appeal inspectors' noncompliance notices when they contain factual errors, incorrect regulatory citations, improper trend indicators, and/or when they were issued before the plant was allowed adequate time to implement the corrective action. For example, one manager emphasized that his plant had never appealed a noncompliance notice prior to the HACCP regulations, but now he appeals because there is no guidance on the number of noncompliance notices that could result in

USDA's slowing down production or shutting the plant. Similarly, three other plant managers said that the National Meat Association told them to appeal all noncompliance notices for the aforementioned reasons.

Data in the Appeals Tracking System Are Incomplete and Inconsistent

During 1998, USDA established the automated Industry Appeals Tracking System to monitor industry appeals. Inspectors are required to submit appeals information to their district offices weekly for compilation into this tracking system. The information is to include the names and addresses of the plants making the appeals; the dates the appeals were made, resolved, and closed; the numbers of related noncompliance notices, descriptions of the decisions or actions that a plant is appealing; and explanations of the resolution. FSIS' instructions for completing the tracking report provide inspectors with an example of the information that should be submitted.

While data in the appeals tracking system are incomplete and inconsistent, they still show that plants make use of the appeals system. For example, from June 6, 1998, through September 7, 1999, 234 plants made a total of 1,564 appeals. Of the 1,564 appeals, 1,051 were denied, 449 were granted, and 64 were under review. Plants located in 6 of the 18 FSIS districts—Springdale, Des Moines, Jackson, Alameda, Dallas, and Raleigh—filed 1,099 of the appeals. Table 6 summarizes these data.

Table 6: Appeals Data From FSIS Industry Appeals Tracking System, June 6, 1998, Through September 7, 1999

FSIS district	States	Number of plants	Number of plants appealing	Total appeals	Number of appeals denied	Number of appeals granted	Number of appeals under review
Springdale	AR, LA, OK	120	27	251	184	64	3
Des Moines	IA, NE	140	26	202	131	69	2
Jackson	AL, MS, TN	157	23	190	144	44	2
Alameda	CA	298	23	129	106	22	1
Dallas	TX	181	22	208	118	77	13
Lawrence	KS, MO	90	17	78	40	37	1
Chicago	IL, IN	224	11	83	54	28	1
Raleigh	NC, SC	107	11	119	81	33	5
Atlanta	FL, GA	147	10	82	70	12	0
Minneapolis	MN, MT, ND, SD, WY	91	11	50	33	17	0
Beltsville[a]	DE, MD, VA	80	9	46	18	7	21
Philadelphia	PA	154	9	25	21	4	0
Madison	MI, WI	132	9	25	16	6	3
Boulder	AZ, CO, NM, NV, UT	77	7	37	13	14	10
Albany	NJ, NY	233	7	12	7	5	0
Pickerington	KY, OH, WV	118	5	17	12	5	0
Boston[b]	CT, ME, MA, NH, RI,VT	99	5	6	3	2	1
Salem[c]	AK, HI, ID, OR, WA	107	2	4	3	0	1
Total		**2,555**	**234**	**1,564**	**1,051**	**449**	**64**

[a]Includes the District of Columbia.

[b]Subsequent to our review, the Boston District Office was closed because FSIS reorganized its field office operations.

[c] Includes American Samoa and Guam.

When we attempted to analyze the extent to which plants appeal noncompliance notices they believe to be inaccurate, we found that the data contained in the Industry Appeals Tracking System were inconsistent and incomplete. Inspectors and district managers do not always submit thorough descriptions and explanations of the appeal cases. For example, some district offices provided only a description of the noncompliance notice being appealed, but no explanation of the basis for granting or denying the appeal. Other district offices provided only partial

descriptions or did not include any kind of description. Furthermore, in comparing the appeals listed on the appeals tracking report with the lists of appeals provided by seven of the plants we visited, we found that the tracking report excluded 9 of the 64 appeals one plant had made and 7 of the 25 appeals another plant had made. In addition, the appeals tracking system did not contain any data for five plants, although these plants had received written appeals determinations from FSIS.

These irregularities can be attributed in part to (1) inspectors' not submitting appeals data to their respective district offices for entry into the tracking system, (2) inspectors' time constraints, or (3) FSIS data entry errors. For example, an inspector and a circuit supervisor told us that they did not submit such information to the district office because they did not know they were required to do so. Another inspector said that he did not have sufficient time to complete the required data submissions and that the instructions were too confusing. Finally, some district offices submitted inaccurate entries to FSIS headquarters for entry to the tracking system, and some entries were incorrectly entered into the system at the headquarters level.

Conclusions

USDA's adoption of the HACCP system is designed to prevent or reduce contamination in meat and poultry plants and thus enhance the safety of the products they produce. USDA regulations implementing the HACCP system are consistent with the seven HACCP principles endorsed by the National Advisory Committee on Microbiological Criteria for Foods but also contain regulatory provisions to ensure USDA's oversight. Although USDA does not discourage plants from using quality control or good manufacturing practices programs, it expects them to identify and control food safety hazards that are reasonably likely to occur thorough their HACCP plans. USDA does not allow plants to refer to good manufacturing practices in their HACCP plans as mechanisms for controlling such hazards. However, some meat and poultry plants continue to rely on non-HACCP programs to control these types of hazards. This practice limits the consistent implementation of the HACCP system nationwide as well as USDA's oversight of food safety at these plants.

HACCP training for inspectors was for the most part sufficient to prepare them for their new inspection duties. However, weaknesses in the training program—such as whether inspectors have the authority to ask for changes to a HACCP plan, when they should collect salmonella samples, and

when it is appropriate to issue noncompliance notices—affect USDA's ability to ensure the consistent and effective oversight of the HACCP system.

USDA's process for resolving disputes provides industry with an avenue to appeal enforcement actions. However, inconsistent and incomplete data preclude FSIS from effectively analyzing the types of HACCP-related noncompliance actions that are appealed or the extent to which plants appeal inaccurate noncompliance notices.

Recommendations to the Secretary of Agriculture

To enable USDA to oversee all aspects of food safety at meat and poultry plants, we recommend that the Secretary of Agriculture direct the Administrator of FSIS to review all HACCP plans to verify that plants are identifying and controlling food safety hazards that are reasonably likely to occur through their HACCP programs. This review will ensure that USDA appropriately oversees the HACCP system.

To ensure the consistent inspection of HACCP programs, we recommend that the Secretary direct the Administrator of FSIS to provide clarification and additional training for inspectors in the following areas:

- inspectors' roles, responsibilities, and authorities for reviewing and verifying HACCP plans;
- inspectors' responsibilities for microbial sampling and the frequency of salmonella testing;
- inspectors' responsibilities for how and when to file noncompliance notices and how to select the correct trend indicators.

To ensure that FSIS has complete and accurate information for analyzing industry appeals of noncompliance actions under the HACCP system, we recommend that the Secretary of Agriculture direct the Administrator of FSIS to (1) issue instructions to FSIS' district offices clearly stating that inspectors must provide complete, accurate, timely, and consistent appeals data for the automated appeals tracking system and (2) periodically review the accuracy and completeness of the data in the appeals tracking system.

Agency Comments and Our Response

We provided USDA with a draft of this report for review and comment. We met with USDA officials, including FSIS' Deputy Administrator, Field Operations. Overall, USDA concurred with the conclusions and recommendations contained in the report and found it accurate and

balanced. USDA also stated that FSIS has recently established a cadre of HACCP experts who will review HACCP plans to ensure that plants are identifying and controlling the hazards that are reasonably likely to occur. USDA also noted that the Administrator of FSIS has recently appointed a committee to address the role of training and education in FSIS, including issues related to HACCP training. Beyond these overall observations, USDA provided minor technical suggestions, which we incorporated into the report as appropriate.

We conducted our review from February through November 1999 in accordance with generally accepted government auditing standards.

We will send copies of this report to the congressional committees with jurisdiction over food safety issues; the Honorable Dan Glickman, Secretary of Agriculture, the Honorable Thomas Billy, Administrator, Food Safety and Inspection Service; and other interested parties. We will also make copies available to others on request.

If you have any questions about this report, please contact me at (202) 512-5138. Key contributors to this report are listed in appendix III.

Lawrence J. Dyckman
Director, Food and
Agriculture Issues

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Abbreviations

FSIS	Food Safety and Inspection Service
HACCP	Hazard Analysis and Critical Control Point
USDA	U.S. Department of Agriculture

Results of Telephone Survey of Inspectors

This appendix presents a copy of the telephone questionnaire used to survey 161 inspectors nationwide and the results of that survey.

Telephone Survey

Hello, my name is _____. I am with the U.S. General Accounting Office. GAO is an independent agency of the U.S. Congress, and we are not associated with USDA. As part of a study we are conducting on the new HACCP program for meat and poultry plants, we are conducting a telephone survey of inspectors. We are calling inspectors who attended the HACCP training to ask how well that training prepared them for the new program. Your name appears on a nationwide list of inspectors who attended HACCP training for small plant inspectors. Is that correct? (If caller answers no, thank inspector and terminate interview.) This interview will take about twenty minutes depending on your answers.

OK. Let me read our introduction. Your name was one of a sample drawn randomly to represent the views of inspectors nationwide on the training program, so it is very important that I follow our interview format. If you have any other comments about the HACCP program, I'd like to hold those comments until we've finished the survey questions. At the end of the interview, we can discuss any other issues relating to the HACCP implementation. If there is any question in this interview that you prefer not to answer, just tell me and we'll skip on to the next question, OK?

1. I'd like to start our interview by asking about the two-week HACCP training you attended for small plant inspectors. In what month and year did you complete that HACCP training? **N=161**	**29%** October 1998 **26%** November 1998 **24%** December 1998 **21%** Other months
2. Were you able to complete the entire training program or did you miss 1 day or more of the training? **N=161**	**96%** Entire training **3%** Missed 1 day or more **1%** Other

	Excellent (1)	Good (2)	Fair (3)	Poor (4)	No opinion (5)
3. Training for new programs such as HACCP is often challenging because the ideas are new and unfamiliar. This next set of questions asks you to rate the understanding you gained for new concepts covered in the HACCP training. As I read each item, please tell me how well you would rate your understanding of that concept just after you completed your training. Our categories for these questions are excellent, good, fair, poor, and no opinion.					
a. The major differences between the previous inspection system and the new HACCP inspection system **N=161**	12%	60%	22%	4%	2%
b. The differences between the old Performance Based Inspection System—PBIS—and the revised one **N=161**	11%	52%	26%	9%	3%
c. The difference between basic requirements and other requirements for compliance/noncompliance actions. That is, the difference between 01 and 02 procedures **N=160**	14%	47%	33%	6%	1%
d. What it means to verify a HACCP plan **N=161**	12%	51%	32%	5%	0%
e. How to recognize a HACCP system failure **N=161**	14%	45%	33%	8%	1%
f. How plants develop their HACCP plans **N=161**	18%	35%	35%	11%	1%
g. The purpose of collecting E. coli and salmonella samples **N=160**	33%	51%	9%	4%	3%
h. The inspector's responsibilities regarding E. coli sampling **N=161**	23%	58%	12%	7%	1%
i. The proper method for E. coli sampling **N=160**	29%	56%	11%	2%	3%
j. The inspector's responsibilities regarding salmonella sampling **N=161**	24%	58%	13%	4%	2%
k. The proper method for salmonella sampling **N=160**	29%	56%	12%	2%	1%
l. The changes in SSOP inspections **N=161**	12%	50%	29%	6%	4%

	Excellent (1)	Good (2)	Fair (3)	Poor (4)	No opinion (5)
4. We talked about how well you understood new concepts just after the HACCP training. Now we'd like to talk about the time period when you started using the HACCP training on the job. We want to know how well the training prepared you as you started implementing your HACCP duties in the plant. As I read a list of items, I'll ask you to rate your preparation to do each one. Again, our categories are excellent, good, fair, poor, and no opinion.					
a. What actions I need to take to verify that a HACCP plan at my plant complies with requirements **N=161**	14%	55%	26%	5%	1%
b. What day-to-day activities I should conduct to verify compliance with the plant's HACCP plan **N=161**	13%	64%	16%	6%	1%
c. What actions I need to take in cases of noncompliance **N=161**	21%	49%	19%	10%	1%
d. How I handle disputes over noncompliance at the plant **N=161**	17%	51%	18%	11%	3%
e. What I need to do if there is an appeal of a noncompliance record **N=161**	17%	44%	24%	10%	4%
f. What I should do to oversee the plant's testing for E. coli **N=161**	14%	45%	22%	9%	11%
g. How I should use the NR trend indicators to track the plant's HACCP system performance **N=161**	10%	46%	30%	12%	1%
h. What I need to do to keep up on the plant's changes to the HACCP plan **N=161**	12%	51%	29%	6%	2%
i. What resources I can use if I am uncertain about HACCP compliance **N=160**	27%	50%	18%	4%	1%

5. Now I'd like for you to think about all aspects of the HACCP program and how well the training prepared you, overall, for your work as a HACCP inspector. Again, our categories are excellent, good, fair, poor, and no opinion. How do you rate your overall preparation for work as a HACCP inspector? **N=161**	**9%** Excellent **56%** Good **27%** Fair **7%** Poor **1%** No opinion **1%** Other
6. In this next set of questions, we'd like to ask about some general aspects of the HACCP training you attended. First, we'd like to know how you would rate the timeliness of your HACCP training—that is, whether the timing was right for you to conduct your responsibilities as an inspector. Which category best fits your situation—just in time, too soon, not soon enough, or can't you say? **N=161**	**58%** Just in time **17%** Too soon **17%** Not soon enough **8%** Cannot say **0%** Other (Describe.)

(continued)

7. Another aspect of training is how well the facilitators are able to respond to questions from the audience. Overall, how would you rate the skill of the training facilitators in answering questions that came up during your training sessions? Would you rate that as excellent, good, fair, poor, or would you say no opinion? **N=161**	**37%** Excellent **32%** Good **22%** Fair **9%** Poor **0%** No opinion **1%** Other
8. Training is usually more helpful when "real-life" examples are used to practice new concepts. We'd like to ask how useful such real-life examples were during the training you attended. Would you say the examples used at your training were very useful, moderately useful, not very useful, or would you say no opinion?	**28%** Very useful **48%** Moderately useful **19%** Not very useful **4%** No opinion **1%** Other (Describe.)
Next we'd like to ask about several situations covered in training where an inspector must decide what to do. As I ask you about each situation, I'll read two ways an inspector could handle it. Then, I'll ask you which way is closer to how your training taught you to handle it, even if you decided to do it differently at your plant. If you don't remember a situation being covered in the training, just tell me and we'll go on to the next item, OK?	
9.The first situation concerns whether or not you are allowed to ask for changes to the plant's HACCP plan. Here are the two options. First, it's okay for me to ask plant managementto make changes to the HACCP plan, or, second, It's not okay for me to ask for changes to the HACCP plan. Which way is closer to what you learned in training, or would you say that you are uncertain? **N=161**	**21%** It's okay for me to ask plant management to make changes to the HACCP plan **61%** It's not okay for me to ask for changes to the HACCP plan **17%** Uncertain **1%** Other
10. The next situation concerns sampling after you have been notified to begin salmonella testing. Here are the two options. First, I should take samples as time permits, or, second, I should take a sample every day the product is produced. Which way is closer to what you learned in training, or would you say that you are uncertain? **N=161**	**12%** I should take samples as time permits. **65%** . I should take a sample every day the product is produced. **20%** Uncertain **3%** Other
11. The next situation concerns your decision to prepare a noncompliance record—NR. The first option is. . . I should give the HACCP system a chance to work first without filing an NR in a noncompliance situation, or, second, I should immediately file an NR in situations of noncompliance. (As necessary:) Which statement is closer to what you learned in training, or would you say you are uncertain? **N=161**	**67%** I should give the HACCP system a chance to work first without filing an NR in a noncompliance situation **25%** I should immediately file an NR in situations of noncompliance. **3%** Uncertain **5%** Other
12. And, the last situation in this group concerns your role regarding microbial testing other than for E. coli and salmonella. In this situation, you find out that the plant is testing for other pathogens and those results indicate contamination at the plant. The first option is, I am not required to take action based on the test results unless the HACCP plan includes that type of testing, or, second, Ishould take whatever actions I think are necessary, regardless of the HACCP plan. (As necessary:) Which statement is closer to what you learned in training, or would you say you are uncertain? **N=161**	**44%** I am not required to take action based on the test results unless the HACCP plan includes that type of testing **32%** I should take whatever actions I think are necessary, regardless of the HACCP plan **21%** Uncertain **3%** Other

	Very helpful (1)	Somewhat helpful (2)	Not very helpful (3)	No opinion (4)
13. Our next question is about ways that you might learn more about the HACCP program. I'll read a list of items and ask you whether each one seems very helpful, somewhat helpful, or not very helpful for learning more about HACCP. OK? The first one is . . .[read first item]. How helpful would that be for you to learn more about HACCP? Would you say it sounds very helpful, somewhat helpful, not very helpful, or would you say you have no opinion?				
A. To attend a classroom, refresher training course **N=161**	68%	26%	6%	1%
B. To have a training facilitator visit my plant **N=161**	39%	35%	24%	3%
C. To receive a newsletter for inspectors **N=161**	47%	40%	11%	2%
D. To attend training that is given to plant employees **N=160**	23%	36%	36%	5%
E. To use a self-paced computer training package **N=161**	42%	42%	14%	3%
F. To participate in a computerized forum on the INTERNET where inspectors share their HACCP experiences **N=161**	44%	42%	9%	4%

G. Any other types of additional training that would be very helpful to you? **N=161**	**24%** gave additional comments
If respondent said "very helpful" to more than one item, ask the following: H. You mentioned that ___ [state number] things that might be very helpful to you. That's ___, ___, and ___. [Read back "very helpful" answers, including "other."] Which of those do you think would be the most helpful to you? **N=161**	Letter of most helpful item: A **37%** B **17%** C **11%** D **4%** E **9%** F **12%** G **1%** None of the above **9%**

14. Now that we've covered several possibilities for additional training, I'd like to ask you how important, if at all, you think additional training would be for you, personally. Would you say additional training is very important, moderately important, not too important for you, or would you say you have no opinion? **N=160**	**56%** Very important **38%** Moderately important **6%** Not too important **1%** No opinion **0%** Other
15. We've talked about many aspects of the HACCP training and now we'd like to ask a final question about your ideas on improving the training. This time we have no set categories for the answer. Suppose you were the one in charge of the HACCP training. What would you most like to see changed? [If respondent does not mention real-life examples use this probe:] Are there any other real-life examples that you would like to see in the training. **N=161**	**87%** gave comments **13%** gave no comments
16. That's all of the survey questions I have, and I want to thank you for your help today. Did you have any questions before we finish or any other comments you would like to make? **N=161**	**66%** gave comments

Objectives, Scope, and Methodology

To analyze the degree to which the U.S. Department of Agriculture's (USDA) Food Safety and Inspection Service's (FSIS) Hazard Analysis and Critical Control Point (HACCP) system adheres to the seven HACCP principles as defined by the National Advisory Committee on Microbiological Criteria for Foods, we met with members of this Committee and with officials in FSIS' Office of Policy. We compared the Advisory Committee's seven principles with FSIS' HACCP regulations and interviewed meat and poultry plant managers and inspectors at 32 plants to discuss and observe how the seven principles are being implemented. We did not evaluate the plants' hazard analyses or how well they implemented their HACCP plans. We selected plants that together represent (1) most of the FSIS meat and poultry processing categories, such as slaughter and canning; (2) both the large (over 500 employees) and small (10 to 499 employees) plants that implemented HACCP systems as of January 25, 1999; and (3) plants on both the East and West coasts and in the Midwest. At the plants we visited, we reviewed 57 HACCP plans that were made available to us to determine how the seven principles were addressed. Finally, we discussed the implementation of HACCP systems with FSIS district managers in three locations—Alameda, California; Philadelphia, Pennsylvania; and Des Moines, Iowa.

To examine the adequacy of inspectors' training, we reviewed USDA's HACCP training curriculum, participated in the 8-day course for HACCP inspectors, reviewed and analyzed industry's and USDA's previous assessments of inspectors' training, and conducted a nationwide telephone survey of inspectors who had most recently completed HACCP training. That group consisted of inspectors who were trained prior to the implementation of HACCP plans at small plants in January 1999. We identified these inspectors by contacting FSIS district offices and obtaining the names of the 1,787 inspectors who had completed this training. We randomly selected a sample of 200 inspectors to represent this population. The sample size was designed to provide sampling errors of no more than 5 percent at the 95-percent confidence level. The actual sampling errors for our survey were somewhat higher when the percent of responses to our survey questions was between 18 and 82 percent. Table II.1 displays the sampling errors associated with selected percentage responses to our survey questions.

Table II.1: Sampling Errors Associated With Survey Responses

Range of reported survey percents (161 interviews)	Sampling error
1 percent	1 percent
2 to 3 percent	2 percent
4 to 6 percent	3 percent
7 to 10 percent	4 percent
11 to 17 percent	5 percent
18 to 27 percent	6 percent
28 to 72 percent	7 percent
73 to 82 percent	6 percent
83 to 89 percent	5 percent
90 to 93 percent	4 percent
94 to 96 percent	3 percent
97 to 98 percent	2 percent
99 percent	1 percent

We pretested the telephone survey by contacting five inspectors to ensure that the (1) questions were understandable, (2) terms used were clear, (3) survey did not place an undue burden on USDA employees that would result in a lack of cooperation, and (4) survey was independent and unbiased. Appropriate changes were incorporated into the final survey on the basis of our pretesting. We completed interviews with 161 of the 200 inspectors, which provides a response rate of 81 percent. Finally, we reviewed FSIS' curriculum and materials for training inspectors and attended both the abbreviated (1 day) and full-length (8 days) HACCP training courses. We also interviewed plant managers and FSIS inspectors at the plants we visited to obtain their views on FSIS' training.

To determine if there is an adequate HACCP dispute resolution process available to address noncompliance issues between plants and inspectors, we reviewed existing and proposed regulations, directives, and guidelines, and the pre-HACCP dispute resolution and appeals process to determine if and how the new process differs. To determine how well the current process is working, we analyzed appeals data collected by FSIS through its Industry Appeals Tracking System and collected testimonial evidence from FSIS and plant personnel during our plant visits and through the nationwide inspector telephone surveys.

We conducted our review between February and November 1999 in accordance with generally accepted government auditing standards.

GAO Contacts and Staff Acknowledgments

GAO Contacts

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Acknowledgments

In addition to those named above, Maria Cristina Gobin, George R. Senn, Inez M. Azcona, Katherine Carey, Fran A. Featherston, Carol Herrnstadt Shulman, and Oliver Easterwood made key contributions to this report.

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