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MEAT SAFETY

Inspectors' Ability to Detect
Harmful Bacteria Is Limited

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Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to discuss recent efforts to improve the ability of the federal meat inspection system to prevent food poisonings similar to those in January 1993 that caused several deaths and hundreds of illnesses. You asked that we comment on the progress made by the U.S. Department of Agriculture (USDA) and its Food Safety and Inspection Service (FSIS) to detect harmful bacteria in meat during slaughter and processing operations. More specifically, you asked that our testimony address (1) what changes have been implemented in the meat inspection system, (2) how effective these changes have been, and (3) what still needs to be done to provide consumers with a safe meat supply.

In summary, while FSIS has made some changes, the inspection system is only marginally better today at protecting the public from harmful bacteria than it was a year ago, or even 87 years ago when it was first put in place. FSIS' recent efforts have neither dealt with the inspection system's inherent weaknesses nor fundamentally changed the system's predominant reliance on sensory (sight, smell, and feel) inspection methods. These methods cannot identify microbial contamination, such as harmful bacteria, which is the most serious health risk from meat and poultry. Although FSIS has known about this problem for 15 years or more, its major initiative in response--creating a new inspection system--is still years away.

In fiscal years 1993 and 1994, USDA budgeted about \$45 million and about 440 staff years, to put together a program of 81 projects to improve its current inspection system, such as (1) proposing a regulation mandating the use of package labels describing how to handle and cook meat and poultry safely, (2) undertaking over two dozen data collection and research projects, and (3) implementing stronger oversight of meat and poultry plants with a high-risk profile. In addition, FSIS has begun a long-term effort to study how the inspection system can be completely revamped to better protect public health.

FSIS' recent efforts have probably lowered the chance that people will become ill from eating meat contaminated with harmful bacteria. For example, because of FSIS' efforts to provide information, consumers and retail food establishments are now more aware that raw meat products must be properly handled and cooked to control or kill bacteria. Also, FSIS' more vigorous enforcement of the current sanitation and slaughter processing regulations will indirectly help control bacterial contamination by eliminating some potential sources of contamination. However, the ability of the inspection system to detect harmful bacteria, evaluate how serious the problem is, and take corrective action remains limited. FSIS has not established a regulatory program requiring plants and inspectors to routinely test for harmful bacteria. Such testing is

the only conclusive means to determine whether (1) sanitation and processing controls are working properly and (2) the product is free of contamination.

As GAO and others have repeatedly stated over the past 15 years, a new, scientific, risk-based inspection system is needed to better protect the public from foodborne illnesses. Such a system would allow FSIS to target its resources towards higher-risk meat and poultry products by increasing inspection of such products, developing methods or tools that would help inspectors detect microbial contamination, and/or increasing the testing of such products.

Before we provide more details on our findings, we will give you some background on the current inspection system.

BACKGROUND

At the turn of the century, Upton Sinclair's The Jungle raised a public outcry about contagious animal diseases, unsanitary conditions, deceptive practices, and lax government inspection at meat packing plants. The Congress responded to this outcry by passing the Federal Meat Inspection Act in 1907. This act and a subsequent poultry act require federal inspection of meat and poultry to ensure that they are safe, wholesome, and correctly labeled and packaged. To achieve these objectives, the acts require that each individual animal carcass be examined at the time of slaughter by an on-line USDA inspector.¹ In this traditional inspection, largely unchanged for 87 years, inspectors make judgments about disease conditions, abnormalities, and contamination in animals and carcasses on the basis of what they see, feel, and smell--a process known as organoleptic inspection.

After slaughter, meat and poultry from government-inspected carcasses can be inspected again during further processing. (Processing operations can include simple cutting and grinding, complex canning procedures, or the preparation of ready-to-eat products.) FSIS implements the federal inspection laws by requiring that all meat and poultry processing plants be visited daily by a USDA inspector, who may spend from 15 minutes to several hours performing various inspection duties. These inspections, also, rely primarily on organoleptic methods.

Nevertheless, the safety of meat and poultry remains a concern. While inspectors may indirectly identify some microbial contamination using these traditional methods, they cannot see, smell, or feel the presence of microbial pathogens. FSIS and

¹In fiscal year 1992, FSIS inspectors visually checked 89.2 million swine, 30.8 million cattle, 5.1 million sheep and lambs, 1.8 million other livestock, and 6.8 billion poultry.

others have recognized that such pathogens now present the greatest risk to public health from eating meat and poultry. Because many cases of foodborne illness go undiagnosed, the actual number of incidents may well be much higher than the Centers for Disease Control's estimate of 6.5 million annually and, according to FDA, may reach 80 million or more. The Centers for Disease Control has recognized that meat and poultry products are a primary cause of foodborne disease. USDA estimates that the annual cost of foodborne illness in the United States ranges from \$5.2 billion to \$6.1 billion, with more than half of this amount--\$3.9 billion to \$4.3 billion--attributable to meat and poultry.

FSIS HAS TAKEN INITIATIVES TO BETTER
PROTECT THE PUBLIC FROM HARMFUL BACTERIA

In response to the tragic E.coli poisonings in January 1993, FSIS announced a two-track plan to update the meat and poultry inspection system. Track I, currently under way, is a near-term plan for maximizing the effectiveness of the existing system. Track II, initiated in 1993, is described as a longer-term effort aimed at overhauling the entire system. FSIS estimates that the modernized system developed in Track II will be in place by the year 2000.

On January 27, 1994, FSIS provided us with information on 81 individual projects undertaken as part of Track I. These projects, which are at various stages of development, generally fall into four categories:

- Strengthened oversight and regulatory enforcement. Stronger oversight of meat and poultry plants was the focus of 28 projects. For example, projects included assigning more experienced inspectors to plants that slaughter higher-risk animals; developing a profile of "problem" plants and making unannounced, special reviews of plants fitting the profile; and writing new rules to strengthen record-keeping requirements. As with FSIS' routine inspections of slaughter and processing plants, these new initiatives rely on organoleptic inspection procedures.
- Greater consumer awareness. Efforts to increase consumer awareness of the potential hazards of raw meat and poultry were involved in 15 projects. The most significant initiative in this category is the well-publicized proposed regulation that would mandate that all raw meat and poultry products sold at retail stores include a label on safe handling and cooking procedures. While consumer education should help reduce the number of outbreaks of food poisoning, it will not eliminate them. For example, since the E. coli outbreak of January 1993, the nation has experienced an increase in the number of incidents of

foodborne illnesses caused by meat contaminated with the same E. coli bacteria.

- Data collection, research, and studies. Various initiatives to collect data, conduct research, and perform studies of microbial pathogens comprised 32 projects. These projects include national baseline studies of bacteria found on carcasses at slaughter plants, research projects to determine the cause and source of harmful bacteria, and the publishing of criteria that biotechnology firms should consider when developing quick tests for detecting microbial contamination. These initiatives could potentially help prevent foodborne illness in the long term, but in the near term do not preclude such incidents.

- Stricter procedures for slaughter and dressing. Stricter slaughter and dressing procedures to reduce the potential for bacteria from intestinal sources to contaminate the carcass were the subject of six projects. These projects involve requiring that carcass and boneless meat surfaces be free of visible contamination--the so called "zero tolerance" standard. These stricter procedures should help reduce the incidence of foodborne illnesses by indirectly reducing some potential sources of microbial contamination. While there is believed to be a high correlation between the presence of visual contamination and microbial contamination, the correlation is not absolute. Further, there are other sources of microbial contamination that can not be identified visually. Therefore, the zero tolerance standard does not ensure that inspectors will be able to identify microbial contamination.

FSIS INITIATIVES DO NOT HELP INSPECTORS IDENTIFY AND EVALUATE BACTERIA

While FSIS has made some constructive changes and undertaken numerous research and data collection projects, it has not yet overcome the inspection system's inherent weaknesses nor made the fundamental changes needed to better protect the public from the most serious health risk from meat and poultry--microbial contamination.

With advances in animal and veterinary science, many infectious diseases have been controlled, thereby decreasing the human health hazard posed by animal diseases. In contrast, microbial hazards associated with the crowding of animals and other factors have grown. FSIS clearly recognized this change in risk in its 1991 report to the Congress. In that report, FSIS concluded that microbial hazards present the greatest risks posed by meat and poultry to public health.

None of the 81 FSIS initiatives undertaken under Track I have changed the labor-intensive, organoleptic process used at meat and poultry plants. During visits to meat and poultry plants, we watched inspectors using knives, flashlights, mirrors, and thermometers. While inspectors may identify some contamination using these traditional methods and tools, they cannot see, feel, or smell microbial pathogens. Experts have increasingly questioned the public health benefits of FSIS' reliance on organoleptic inspection. According to a 1985 National Academy of Sciences report, while organoleptic inspection serves its original purpose of protecting consumers from grossly visible lesions or diseases, it cannot identify microbial pathogens--today's principal health risk. Similarly, an October 1993 conference of the World Congress on Meat and Poultry Inspection--an international association of government regulators from meat trading countries--concluded that post-mortem organoleptic inspection must be changed because (1) it wastes resources and cannot detect microbial pathogens, (2) the animal diseases for which it was originally designed have been eradicated in many countries, and (3) it results in unnecessary cross-contamination because the hands-on inspection techniques used virtually ensure that contamination is spread from one carcass to another.

Based on past work, we would like to highlight two limitations that are especially relevant to the current inspection system. First, current laws restrict FSIS' flexibility to respond to changes in the level of risk. Regardless of the risk to public health, FSIS is required by law to perform continuous inspection at slaughter plants--examining every carcass--and to visit each processing plant daily. Because of these requirements, the agency is limited in its ability to adjust inspection frequencies and target its resources to respond to changing risk.

Second, although FSIS has known for many years that microbial contamination was a serious problem, it has not routinely performed microbial tests of equipment surfaces or raw products, nor does it require industry to perform such tests. As a result, FSIS does not know where in the production and processing cycle microbial contamination is most likely to occur, or what types of bacteria are prevalent and at what levels. Such information is needed to design and implement an effective control program. FSIS now recognizes the need for such information and has initiated various research and data collection efforts.

Recognizing the importance of microbial testing, some plants have set up microbial testing programs on their own to ensure the safety and quality of their products. For example, one plant we visited started a microbial testing program to check on the effectiveness of its cleaning procedures. Test results indicated that even though cleaned surfaces had passed FSIS' inspection, some of these surfaces still contained high levels of bacteria. Company

management therefore revised its cleaning procedures to reduce bacteria levels.

While self-initiated plant programs have resulted in worthwhile changes, they also vary in their effectiveness because sampling methodologies, types of tests performed, and test evaluation criteria differ from plant to plant. FSIS has not developed industrywide guidelines or standards that define a safe level of bacteria to help those plants that do perform microbial tests, nor has FSIS attempted to collect or disseminate the results of these testing programs to help other plants correct similar problems.

SCIENTIFIC, RISK-BASED INSPECTION SYSTEM IS NEEDED

Although experts agree that the intensity and type of inspection should be determined by the risk a particular food presents, the current meat and poultry inspection system is not based on risk and is not able to adequately protect the public from harmful bacteria. Labor-intensive inspection procedures and inflexible inspection frequencies drain resources that could be put to better use in a risk-based system.

In March 1993, shortly after the E. coli poisoning incident, we testified that to protect the public from unsafe meat and poultry, FSIS needs to move to a scientific, risk-based inspection system.² Such a system would allow FSIS to better target its resources towards the higher-risk meat and poultry products by increasing the inspection of these products, developing methods or tools that would help inspectors to detect microbial contamination, and/or increasing the microbial testing of these products.

One concept for improving the scientific basis for regulating food safety is a production control process known as Hazard Analysis and Critical Control Point (HACCP). This process consists of identifying the likely hazards that could be presented by a specific product and then identifying the critical control points in a specific production process where a failure would likely result in a hazard being created or allowed to persist. These critical control points are then systematically monitored, and records are kept of that monitoring. Corrective actions are also documented.

On May 27, 1993, the Secretary of Agriculture directed FSIS to publish in 90 days a plan for carrying out his decision to mandate that all meat and poultry plants set up HACCP systems. However, even though USDA has been actively pursuing HACCP for 3 years, FSIS

²Food Safety: Building a Scientific Risk-Based Meat and Poultry Inspection System, (GAO-T/RCED-93-22, March 16, 1993).

has not yet proposed any regulations, decided on specific requirements for plant HACCP systems, or decided on whether it will require microbial testing to monitor or verify a system's performance.

CONCLUSIONS

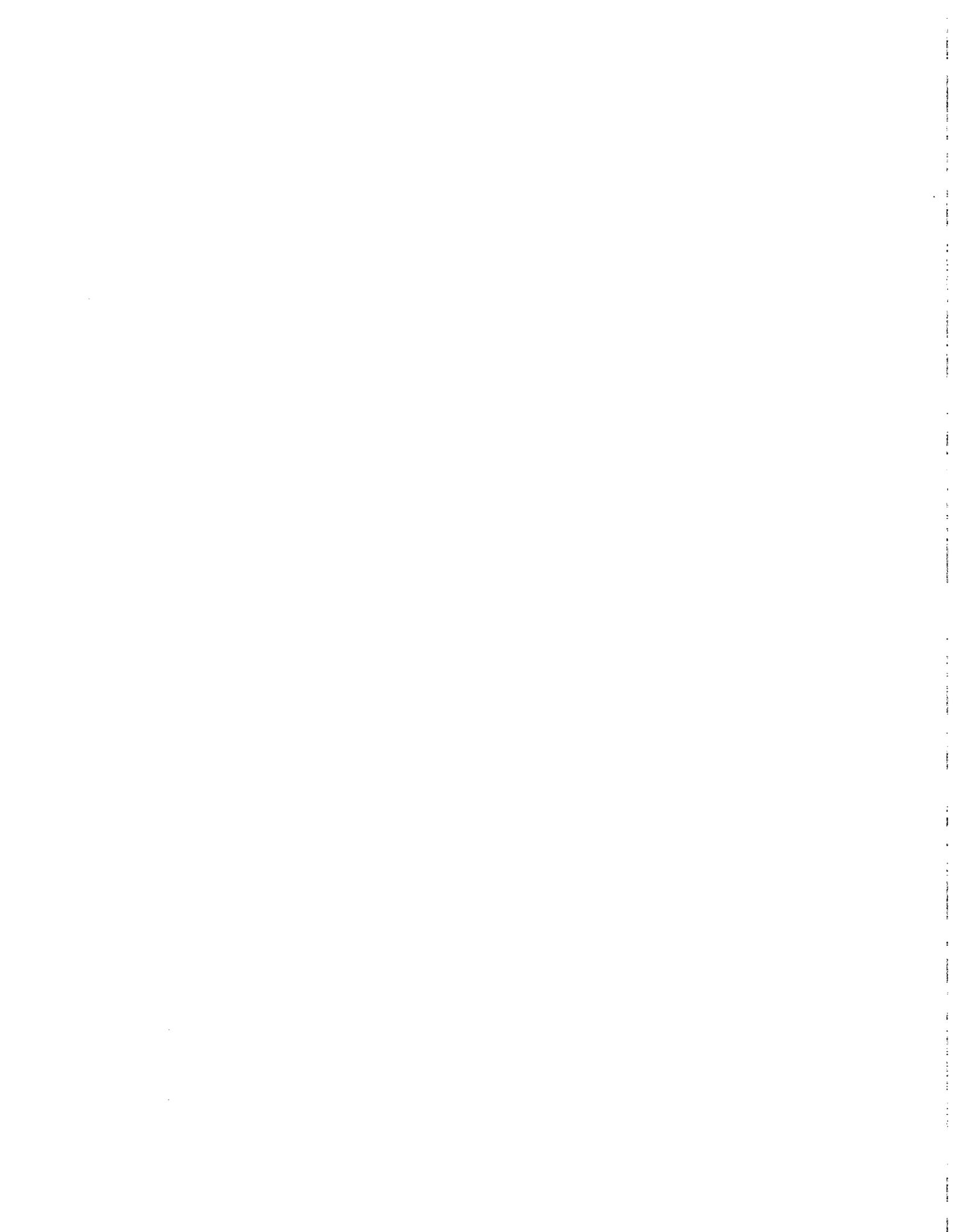
The present inspection system cannot effectively identify and prevent meat contaminated with pathogenic bacteria like E. coli from entering the nation's food supply. It still relies primarily on organoleptic inspection procedures that are not capable of detecting such pathogens--the greatest public health risk associated with meat and poultry. FSIS' initiatives to improve the inspection system have not addressed this inherent weakness, nor has FSIS sought requirements for routine microbial testing by industry or government inspectors.

To better protect the public from foodborne illnesses, FSIS must move to a modern, scientific, risk-based inspection system. Such a system would allow FSIS to target its resources towards the higher-risk meat and poultry products by increasing inspection of these products, developing methods or tools that would help inspectors detect microbial contamination, and/or increasing the microbial testing of these products.

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This completes our prepared statement. We will be glad to discuss meat and poultry inspection issues further with you, other Subcommittee members, or your staffs.

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