

Enhancing Public Health: Strategies for the Future 2003 FSIS Food Safety Vision

ABSTRACT

On March 19, 2003, Agriculture Secretary Ann Veneman challenged the Food Safety and Inspection Service (FSIS) to reach the next level of food safety. Secretary Veneman's challenge called for creative and effective ways to modernize the FSIS' ability to continue to improve the safety of U.S. meat, poultry, and egg products to better protect public health. This vision document identifies goals and strategies to be pursued by FSIS.

Americans enjoy the safest food supply in the world. This is due in part to efforts by the U.S. Department of Agriculture (USDA) to follow a scientific approach in administering its food safety programs. This approach has resulted in tangible public health benefits for consumers, as seen by the 16 percent decline in foodborne illness over the last 6 years. The Centers for Disease Control and Prevention (CDC) attributes these results in part to the implementation of the Hazard Analysis Critical Control Point (HACCP) system in all meat and poultry plants in the United States.

Over the past two years, the Food Safety and Inspection Service (FSIS) has been implementing a 5-point strategy to further reduce the incidences of foodborne illness using HACCP as the foundation. This strategy includes: improved management of inspectors, application of science in crafting regulations, better coordination with other agencies, an aggressive education campaign for food handlers, and protection of the food supply against terrorist attack.

In this document, FSIS presents a list of accomplishments achieved over the past two years that further enhance the safety of the food supply. In order to continue on the road to improving public health, FSIS will be implementing several new initiatives. These new initiatives, which are outlined in this document, are focused on improved training for inspectors, the use of effective technologies in processing plants to address harmful bacteria, and on scientific research directed and applied to address food safety from the farm to the table.

In addition to these ongoing efforts, the Agency must examine how it can best utilize its resources and authorities to further enhance its systems while providing incentives for compliance. A brief description of these challenges is also presented in this document, laying the groundwork for directions that FSIS may take in the future. The Agency welcomes the input of all interested parties and encourages the free exchange of ideas as it continues to work to enhance the safety of the food supply.

Introduction:

Americans enjoy the safest food supply in the world, and it is getting safer. This is evidenced by an overall 16 percent decline in foodborne illnesses from 1996 to 2002, as reported by the Centers for Disease Control and Prevention (CDC). Preliminary FoodNet data for that 6-year period were released April 18, 2003. The preliminary data demonstrate a sustained decrease in major bacterial foodborne illnesses caused by *Campylobacter* and *Listeria*, indicating progress toward meeting the Agency's health objectives of reducing the incidence of foodborne infections. In addition, data from FSIS show a continuing decline in the prevalence of *Salmonella* in regulatory samples of meat and poultry.

In spite of these positive trends towards a safer food supply, FSIS recognizes that intensified efforts are needed to further reduce the incidence of foodborne illnesses related to meat, poultry, and egg products in the United States. For example, preliminary FoodNet data do not show a sustained decline in foodborne infections caused by *E. coli* O157:H7 and *Salmonella*. Eradicating foodborne illness is an evolving challenge affected by many factors. These factors include changes in food distribution and preparation habits, increases in the average lifespan and the number of immune-compromised individuals, and the emergence and virulence of new pathogens. As the Institute of Food Technologists states in its report titled, "Implications for Control in the 21st Century," food safety issues change over time and so too must the management strategies and regulatory framework.

FSIS is committed to anticipating the changes by incorporating into policymaking the many advances that have been made in food safety research and technologies. These advances will enable FSIS to predict trends in food contamination and in hazard survivability and growth, thereby enabling the Agency to protect the public's health to the greatest extent possible. An added benefit to such a preventive and anticipatory approach to food safety is the impact that various management practices can have on risk mitigation. Applying risk assessment can enable us to focus efforts on the highest-risk problems, resulting in a more efficient use of resources.

The continued mission of FSIS is to ensure that consumers have the safest possible food supply. To fulfill this vision, FSIS must use science-based practices to diminish the incidence of foodborne illness associated with meat, poultry and egg products. This document outlines recent FSIS accomplishments in combating foodborne illness, describes new initiatives FSIS is undertaking in pursuing its mission, and presents the challenges that must be overcome in order to realize the FSIS vision for food safety. Input from all interested parties on ideas presented in this document is encouraged.

Goals in Pursuit of the FSIS Mission:

The following five core goals best articulate the road map for FSIS' food safety mission:

Goal #1: Improve the management and effectiveness of regulatory programs. In order for policies and programs to be successful, they must be uniformly and correctly applied. Thus, proper training of the workforce is essential. In addition, communication to field personnel needs to be timely and accurate, with proper supervision from the district and from headquarters in order to foster accountability in the system.

Goal #2: Ensure that policy decisions are based on science. Science allows for policy decisions to be continually updated based on technological advances and to respond to emerging threats to public health. Science-based decision-making is objective and preventive in nature and, thus, it offers the best foundation for the development of policies that will achieve the desired result of improving public health, both in the short term and the long term. In terms of developing science-based policies, the threats to public health need to be understood and addressed within the context of the best available research and risk analysis. With input from the scientific community, FSIS can develop practical policies that allow the industry to implement new technologies as food safety interventions.

Goal #3: Improve coordination of food safety activities with other public health agencies. This coordination includes all Federal, State, and other food safety agencies to better utilize resources. All of these agencies share the same mission and their activities and programs should be complementary, so that the maximum benefit can be realized without duplication of efforts.

Goal #4: Enhance public education efforts. Everyone has a responsibility for food safety. Food preparers must know clearly and understand basic food-handling practices. Therefore, FSIS needs to enhance public education efforts. These efforts must be broad enough to ensure that no segment of the public is uninformed about safe food handling practices. Communicating with the public about food safety must be accomplished in a manner that is easily understandable so that it is useful to every segment of the population. The food safety messages must also be targeted to various segments of the population to improve receptivity, and messages should be focused on positively influencing those behaviors that pose the greatest potential risk. These messages must be distributed to as broad an audience as possible to ensure an effective use of resources. Thus, FSIS must consider innovative and collaborative methods for delivering the food safety message.

Goal #5: Protect meat, poultry, and egg products against intentional contamination. In the aftermath of September 11, 2001, there is recognition that threats to the well being of the Nation's citizens can come in the form of terrorist attacks, including the intentional contamination of food. Thus, FSIS must do everything possible to protect meat, poultry, and egg products against such threats. As with food safety, protection of the food supply against intentional contamination must be coordinated with all relevant agencies.

Accomplishments Within Each Goal:

FSIS has made great strides in achieving its vision through the pursuit of its five stated goals. The following is a summary of some of the most significant efforts made since 2001.

Goal #1: Improve the management and effectiveness of regulatory programs. FSIS field employees are in every meat, poultry, and egg products plant, ensuring that the plants are producing products that are safe, wholesome, and accurately labeled. These frontline employees are responsible for making the critical determination that products are not adulterated and therefore are safe to eat. Therefore, it is essential to have a scientifically and technically trained workforce that is dedicated to ensuring a safe supply of meat, poultry, and egg products.

A key to improving the management and effectiveness of food safety regulatory programs is having a workforce that understands the scientific basis behind its programs. Having a workforce more grounded in science enables the Agency to better assess the soundness of food safety programs implemented at slaughter and processing establishments and to enhance its ability to conduct epidemiological investigations. Therefore, the agency created the Consumer Safety Officer (CSO) series to reflect increasing reliance on science and technology. CSOs have a scientific and technical background and receive additional Agency training that enables them to use a disciplined methodology to assess and verify the design of food safety systems. FSIS has trained 107 employees as CSOs in FY 2002, and plans to train almost 200 additional employees in the CSO methodology in FY 2003. In addition, the agency is extending CSO training to its Veterinary Medical Officers.

Because accountability is crucial in delivering programs in a consistent and effective manner, FSIS implemented the In-Plant Performance System (IPPS). This system establishes a formal process so frontline supervisors can be sure that inspection personnel carry out their assigned job responsibilities. All field supervisors have been trained to use this system. The IPPS review helps the supervisor to: identify and address the need to improve an employee's knowledge about his or her responsibilities, encourage correlation with employees to ensure consistency in methods and applications of methods, help identify and address performance problems, and recognize and reward on-target employee performance.

In addition to these efforts, FSIS is finalizing a plan for reorganization to prepare the Agency to better meet its public health and food safety goals. The specific objectives of this reorganization are to increase accountability, enhance communication, strengthen appropriate agency action on HACCP issues as they occur, and improve overall efficiency at FSIS. The changes have strengthened the bonds between the FSIS offices and have made operations more coherent and responsive.

To improve efficiency, the reorganization includes four new offices with cross-cutting purposes. For example, the assistant administrator for Food Security and Emergency

Preparedness ties together all Homeland Security activities within the Agency, so that FSIS policy makers, scientists, field staff, and management are all working together to ensure that FSIS is prepared to prevent and respond to any bioterrorist attack.

The reorganization also includes an Office of Program Evaluation, Enforcement and Review (PEER) to serve as the Agency's quality control team. This office's mission is to ensure that effectiveness, efficiency, consistency, and accountability become the rule at FSIS. The PEER quality assurance program ensures that FSIS functions, such as reviews of plants for compliance and food safety investigations, are carried out in a way most conducive to protecting the public health. This office also conducts audits of foreign country inspection systems, reviews, assessments, and program evaluations in an effort to ensure that the programs are performing as needed. PEER is the Agency's liaison with the General Accounting Office and the Office of the Inspector General; this uniquely positions PEER to focus on key areas in need of improvement. PEER retains the role of ensuring prompt and appropriate enforcement of the inspection laws. The work of the field Program Investigators in PEER places them on a daily basis in close proximity to performance and compliance problems and concerns at the in-plant level, which affords the Agency the ability to deal with necessary adjustments and problems in a much more immediate and direct fashion than in the past. PEER was formed because a strong quality assurance program that uses reviews, evaluations, and audits as its tools can have a significant impact on management effectiveness, efficiency and policy development.

In addition, FSIS recently consolidated all of the communication functions under the Office of Public Affairs, Education and Outreach to increase the efficiency and strength of FSIS' internal and external communications, outreach, and partnerships. This is a cross-cutting office that combines traditional communications activities, such as those conducted by the Agency's Congressional and Public Affairs, Food Safety Education, and Executive Management Staff, with outreach conducted by the Strategic Initiatives, Partnerships and Outreach Staff (SIPOS). SIPOS includes the Meat and Poultry Advisory Committee Staff, the Planning Staff, small and very small plant outreach, and works with members of Federal, State and local governments.

The new Office of International Affairs centralizes the Agency's activities related to regulation of imported meat, poultry and egg products and certification of exports. This includes representation in international settings where FSIS influences and directs activities that establish food safety standards and promotes improved food safety practices worldwide.

In addition to the new offices, FSIS has instituted new information systems to assist in achieving its mission. In FY 2002, FSIS introduced the new Automated Import Information System (AIIS), which directs port-of-entry sampling of imported shipments. The new AIIS system focuses on a foreign country's inspection system as a whole, rather than on individual plants. The system randomly selects shipments of meat and poultry imports for reinspection based on the annual volume of shipments from the exporting country. Previously, reinspection was based only on an establishment's compliance history. The new system is user-friendly for inspectors, provides managers with instant access to inspection reports, and permits better tracking of shipments once they enter the

United States. The next step is for FSIS to integrate its system with other key systems in order to further protect the food safety system against intentional attacks. Such systems include those of USDA's Animal and Plant Health Inspection Service and the Bureau of Immigration and Customs Enforcement within the U.S. Department of Homeland Security.

Goal #2: Ensure that policy decisions are based on science. The food safety system employed by FSIS to accomplish its mission has evolved from a purely inspection program, in which visual and other organoleptic examination was the cornerstone, to one in which a science-based framework is used to identify and prevent food safety problems. This framework is known as the Pathogen Reduction/Hazard Analysis and Critical Control Points (PR/HACCP) system. PR/HACCP allows for the use of science, research, technology, and data disclosure in the development of improved food safety. HACCP identifies hazards for the purpose of establishing critical control points. It is a preventive approach.

PR/HACCP is working. Evidenced by a 16 percent overall decrease in foodborne illnesses between 1996 and 2002, and by a decrease from 5.0 percent to 4.3 percent in the prevalence of *Salmonella* in regulatory samples (from 2001 to 2002), this system has become an effective tool to minimize the entry of pathogens into the food supply.

In addition, a strong system of checks and balances is essential to continued improvements in food safety. In the last two years, FSIS has taken decisive and concrete actions to modernize this system. For example, FSIS has used its authority to issue regulations for specific pathogens to impose additional data requirements on establishments producing ready-to-eat products where the pathogen *Listeria monocytogenes* is a concern. New audit initiatives have produced significant improvements to HACCP controls in raw beef product producing plants. In-depth reviews of establishments failing to meet *Salmonella* performance standards are also producing results, including increased use of suspension authorities pending correction.

As stated above, FSIS continuously reviews its existing authorities and regulations to ensure that emerging food safety challenges are adequately addressed. In addition, FSIS is committed to continuing its emphasis on the use of science, research, and technology in the development of improved food safety policies, focused on prevention whenever possible. Risk assessment is one tool that can provide FSIS with the solid scientific foundation on which to base regulatory and policy decisions. In fact, the Agency has used risk assessment to estimate the likelihood of exposure to various hazards, and to estimate the resulting public health impact. For example, in February 2003, FSIS released a draft of a quantitative risk assessment conducted on *Listeria* in ready-to-eat (RTE) meat and poultry products. On February 26, 2003, FSIS held a public meeting to discuss the design of the risk assessment, the results, and conclusions that could be drawn from it regarding the risk of contamination of RTE products with this pathogen during processing.

The risk assessment, in conjunction with a previously released Food and Drug Administration (FDA)/FSIS risk ranking, peer review and public comment, provided important data enabling FSIS on June 6 to publish a final *Listeria* rule proposed in early 2001. This risk-based regulation will serve as the cornerstone of the FSIS efforts to prevent listeriosis from RTE meat and poultry products. The rule requires all establishments that produce RTE products that are exposed to the environment after cooking to develop written programs to control *Listeria monocytogenes* and to verify the effectiveness of those programs through testing. Establishments must share testing data and plant generated information relevant to their controls with FSIS. The rule also encourages all establishments to employ additional and more effective *Listeria monocytogenes* control measures. The new rule is accompanied by a verification testing program under which intensified testing is conducted at high-risk plants that produce high-risk products, as identified by the previously released FDA/FSIS risk ranking.

In addition to the new *Listeria* regulation, additional policies that have been implemented include:

Salmonella Notice. In August 2002, FSIS issued new procedures emphasizing the use of *Salmonella* testing. Establishment failure to meet the *Salmonella* performance standard triggers an immediate review of an establishment's entire food safety system.

Establishments that do not meet food safety requirements, as determined during these in-depth reviews, are subject to enforcement actions. In fact, in-depth reviews have resulted in an increase in suspensions of inspection from 2.3 percent in 1998 to 4.8 percent in 2002. The new procedures also emphasize coordination between consumer safety officers, district managers, circuit supervisors, compliance officers and inspection personnel to ensure that plants identify and correct problems in their food safety systems that are resulting in noncompliance. Increased coordination also helps FSIS ensure that it addresses performance problems regarding inconsistent inspection and related issues. These can be measured through audits of verification activities carried out by FSIS inspectors.

E. coli O157:H7 Reassessment. Data from the Agricultural Research Service (ARS) as well as FSIS' draft risk assessment for *E. coli* O157:H7, indicate that *E. coli* O157:H7 is more prevalent in cattle than previously believed. Based on this data, in October 2002, FSIS announced a series of new measures to further prevent contamination in ground beef with the pathogen *E. coli* O157:H7.

In an October 7, 2002, *Federal Register* Notice, FSIS informed manufacturers of beef products of the Agency's views about the application of the HACCP system regulations to contamination with *E. coli* O157:H7. The Notice informed all establishments producing raw beef products that they must reassess their food safety plans, based on evidence indicating that *E. coli* O157:H7 is a hazard reasonably likely to occur at all stages of the process (unless they had already reassessed their plans in light of this data). If establishments determine from these reassessments that *E. coli* O157:H7 is a hazard reasonably likely to occur, they (or for grinders, their suppliers) must incorporate one or

more critical control points designed to prevent or eliminate contamination with this pathogen.

FSIS is in the process of reviewing these establishment reassessments, through audits being conducted by CSOs. As of mid-May, 63 percent of all plants reviewed, and 87 percent of large plants reviewed, have revised their HACCP plans to include better controls for *E. coli* O157:H7 in an effort to prevent contamination of products with this pathogen.

E. coli O157:H7 Testing. In April 2003, FSIS issued an FSIS Notice to clarify that FSIS will now collect a sample of ground beef for *E. coli* O157:H7 analysis regardless of the measures that plants take to reduce or eliminate this pathogen. FSIS announced this new procedure in order not to exempt any processor and to recognize that the prevalence of this pathogen begins to rise in April and May of each year. FSIS is in the process of developing a risk-based verification testing program for *E. coli* O157:H7, and expects to issue a revised Directive 10,010.1 in August 2003.

AMR Sampling Program. On March 3, 2003, FSIS released the results of a blind survey of beef products produced using Advanced Meat Recovery (AMR) systems. The survey of 34 establishments was conducted to determine the frequency of products containing central nervous system (CNS) tissue, including spinal cord tissue, produced with this equipment. The results showed that approximately 35 percent of the final product samples tested positive for CNS tissue (spinal cord) and CNS-associated tissues.

As a result of the survey, FSIS began implementing a verification program to verify that establishments using AMR systems to produce beef are following regulations designed to prevent spinal cord from entering the food supply. The sampling program specifically requires inspection personnel to take samples of AMR product on a routine basis. If the tests identify the presence of spinal cord tissue in the product, then inspection personnel are to withhold marks of inspection from the establishment's AMR product and tag the AMR system itself. This means that neither the product nor the equipment can be used until satisfactory corrective action has been taken and verified.

In response to the survey results and the sampling program, establishments with beef AMR systems have implemented numerous changes to reduce the likelihood of spinal cord tissue entering the final product. The changes range from discontinuing the use of their AMR systems altogether, to retraining employees and employing new equipment and procedures to ensure that spinal cord is fully removed from the vertebral column prior to entry into the AMR system for processing. As a result, the percent of samples testing positive for CNS tissue has decreased by over 50 percent.

As a means to consider possible strategies for addressing food safety issues, FSIS has aggressively sought the input of the scientific community and others. The Agency has sponsored many public meetings and scientific symposia that allow the agency to share information with, and gather input from, stakeholders on food safety and public health topics.

A public meeting entitled “Applied Epidemiology – A Public Health Tool to Inform Food Safety Inspection,” was held on January 29-30, 2002, to discuss the Agency’s use of epidemiological data, scientific principles and techniques, and the use of other public health tools. The meeting was designed to help develop a framework for how FSIS will conduct public health investigations and integrate the scientific principles of applied epidemiology into in-plant activities.

FSIS also sponsored a major symposium entitled “Pathogen Reduction: A Scientific Dialogue,” in May 2002. The symposium brought together leading experts from government and academia to discuss scientific data and issues associated with pathogen reduction and HACCP. From this meeting, FSIS has been able to gather information on how pathogens enter the food chain, options for constructing statistically sound performance sampling strategies, new trends in microbiology and microbial ecology, and new technologies to remove or inactivate pathogens on carcasses.

The Second National Conference for Food Safety Educators, “Thinking Globally-- Working Locally: A Conference on Food Safety Education,” was held in Orlando, Florida, from September 18-20, 2002. More than 600 food safety educators from across the United States and around the world attended the conference. This conference enabled the exchange of successful educational approaches among the participants.

On November 18, 2002 FSIS held a “*Listeria* Summit.” This forum allowed government, academia, industry, advocacy groups and the public to present the Agency with up-to-date research data as well as comments on actions that best address *Listeria monocytogenes*. This summit was helpful in obtaining additional scientific analysis, information and public input to finalize a proposed rule on *Listeria* to enhance current policies.

FSIS also held a public meeting December 12, 2002, to discuss improving the process for recalls of meat, poultry and egg products. This public meeting provided an opportunity for public input on how to further improve the recall process. Suggestions and ideas derived from this meeting are currently being considered by the Agency, as it seeks to enhance these systems to better protect public health.

On February 26, 2003, FSIS held a public meeting to discuss and gather input on the draft risk assessment for *Listeria*. The draft risk assessment was an important step in finalizing regulations for addressing *Listeria monocytogenes*. Comments and discussions held at this meeting aided the Agency in determining how the risk assessment could be

improved, and was the first step towards seeking further input through a peer review conducted by university experts soon thereafter.

FSIS held a public meeting on March 27, 2003, to share perspectives and discuss strategies for improving global food safety. The meeting allowed discussion of the challenges faced by the international food safety community, and provided an opportunity to share ideas and perspectives on food safety issues, discuss strategies to improve food safety worldwide, and foster relationships to promote food safety.

Finally, a second public meeting on applied epidemiology was held on April 29, 2003, to discuss the use of epidemiological data, principles, techniques and other tools to help it achieve its public health goals. This meeting was designed as a follow-up to a meeting held in early 2002, with the purpose of helping FSIS develop a framework for how the Agency will conduct public health investigations and integrate the scientific principles of applied epidemiology into its in-plant activities.

On April 28, 2003, FSIS implemented the Food Safety Regulatory Essentials Training Program under which FSIS will retrain the entire workforce in HACCP. The training is based on revised Directive 5000.1, issued May 21. Directive 5000.1 serves as a handbook that contains instructions for FSIS field personnel on how they are to protect the public health by properly verifying an establishment's compliance with the pathogen reduction, sanitation, and HACCP regulations. It guides the consumer safety inspector (CSI) and the CSO on the verification procedures, documentation instructions and enforcement actions for specific food safety activities. It provides a framework to assist the CSI in understanding the thorough process to be followed in performing the inspection methodology and making regulatory decisions.

Goal #3: Improve coordination of food safety activities with other public health agencies. An example of the progress in coordinating efforts was an unprecedented investigation conducted with the CDC and State and local public health agencies on the Northeastern listeriosis outbreak that occurred in 2002. FSIS dispatched seven teams beginning in early September to affected Northeastern States and used information provided by CDC to test products and visit plants that were suspected of being linked to the outbreak. FSIS collected more than 400 samples of product and the environment for analysis in the course of the investigation. When it was first suspected that a turkey product caused the outbreak, FSIS took immediate, focused steps to identify the plant. After identifying the plant, FSIS immediately requested a recall and sent a team of specialists to the establishment to help identify any problems in the plant. Functioning as a true public health agency, FSIS spent an enormous amount of time and resources investigating this outbreak, including creating a team of more than 50 laboratory scientists, regional epidemiologists, CSOs, compliance officers, field personnel and headquarters management to work closely with CDC and State and local public health officials to locate the source. CDC has publicly commended FSIS for its successful public health role in identifying and addressing the source of the outbreak.

In addition, the cadre of FSIS epidemiologists, including several who are Public Health Service (PHS) Commissioned Officers, enhanced public health agency coordination. The ability of FSIS to utilize these PHS Officers results from a Memorandum of Agreement (MOA) with the U.S. Department of Health and Human Services' PHS Commissioned Corps signed on April 17, 2003. The addition of these PHS Commissioned Officers will enhance FSIS capabilities for rapid response during heightened security alerts or in the event of an actual threat to food security.

Another area in which FSIS is making strides involves cooperation with States through the sharing of product recall information. In July 2002, FSIS published a final rule allowing the Agency to share a firm's distribution list with State and Federal agencies in the event of a meat or poultry recall through a Memorandum of Understanding. This change allows for better communication and coordination between FSIS and the numerous State and Federal agencies that are involved in product recalls.

Goal #4: Enhance public education efforts. Food safety education is a critical element of the risk analysis framework, which includes risk assessment, risk management, and risk communication. It is a risk management strategy because educating food preparers – in the home, in institutions, and in food service -- is an important way to reduce the risk of foodborne illness. Education is also a risk communication function because it serves to alert the public about a hazard that exists and can be addressed by safe food handling and food selection.

FSIS has been conducting an aggressive educational campaign of public events and media interviews with national and regional media organizations in order to reach more of the population with important public health messages. Recent events were held in Atlanta, Miami, Detroit, Austin, and Nashville. National television interviews have been conducted with major television networks, including *Fox News*, *Telemundo* and *Univision*. National celebrities, such as former Miss America Heather Whitestone and country singer Wynonna Judd, have also been recruited to help FSIS reach even larger audiences with food safety messages through special events and the filming of Public Service Announcements.

FSIS is developing a comprehensive and sustainable mass media campaign that leverages traditional and non-traditional media outlets throughout the country to get this important message out.

FSIS is sending the *USDA Food Safety Mobile* to strategic locations throughout the country to research and develop this important food safety education campaign. Through a partnership with university extension agents and private industry, the Mobile has hosted numerous demonstrations for food handlers of all ages. While delivering important food safety messages to the public, the *Mobile* is providing valuable first hand insight on how future mass media messages and education campaigns should be constructed and delivered.

Keeping in mind the changing demographics of the Nation, FSIS has also taken important steps to provide food safety education to citizens whose first language is not English. The Agency has translated its most popular consumer publications into Spanish and this year the FSIS Meat and Poultry Hotline is answering – in Spanish – the food safety questions of Spanish-speaking Americans. FSIS is making progress on translating key materials into other languages as well.

Goal #5: Protect meat, poultry, and egg products against intentional contamination.

Close coordination with other public health agencies is important in protecting the food supply against intentional harm. Since the attacks on September 11, 2001, FSIS has strengthened coordination and preparation efforts to prevent, detect, and respond to food-related emergencies resulting from acts of terrorism, and ensure the safety of meat, poultry, and egg products that come to us from other countries. With a strong food safety infrastructure already in place, FSIS has been able to focus on strengthening existing programs and improving lines of communication, both internally and externally.

Also, the formation of PEER provides FSIS with a strong enforcement program with significant surveillance capacity. While much of the Agency's focus is properly at the in-plant level, strong surveillance is critical to the ability to control product at retail, in distribution and in transit. The FSIS enforcement program also addresses intentional contamination of products.

FSIS has made important progress on the scientific front. FSIS laboratories have enhanced analytical capability for compounds of concern, and developed surge capacity. FSIS is represented on the interagency Laboratory Response Network and worked to develop the Food Emergency Response Network for potential foodborne contamination incidents. FSIS has hosted a laboratory workshop for food and drug officials on integrating laboratory resources for national food security. The Agency has also begun construction of a Bio Security Level 3 facility. In order to respond rapidly to possible intentional contamination, field employees must diligently monitor all plants and other facilities where products are stored, handled and transported to ensure that there is no intentional biosecurity breach that could harm the Nation's food supply. Coordination with other agencies is one of the Agency's goals.

FSIS has strengthened its controls to protect the public from the entry of contaminated product from abroad. FSIS continually assesses foreign country inspection systems to ensure that they maintain food safety standards and operations equivalent to the U.S. inspection system. These assessments include in-country audits and port-of-entry reinspection of all shipments entering the country.

To augment the efforts of traditional FSIS import inspectors, FSIS has also added 20 new import surveillance liaison inspectors who are on duty at ports of entry. Where traditional FSIS import inspectors examine each shipment and conduct reinspection activities, these new import surveillance liaison inspectors conduct a broader range of surveillance activities at each import facility and serve as liaisons to improve coordination with other agencies concerned with the safety of imported food products, such as the Department of Homeland Security.

Besides initiatives to screen imported products, FSIS has conducted a vulnerability assessment to be used as a tool for determining the most vulnerable products, likely agents, and potential sites for deliberate adulteration of domestically produced meat, poultry, and egg products. The assessment was conducted using a farm-to-table approach based on current knowledge of the industrial processes used in the production of these products and the potential biological and chemical agents that could be introduced. The assessment was concluded in June 2002, and the information obtained is being used to develop risk management strategies, including ensuring that FSIS laboratories are equipped with the methods and personnel necessary for detecting agents of concern.

FSIS has also developed a vulnerability assessment of the import system to identify points in the production of imported products where biological, chemical, and radiological contaminants could be intentionally added to foods being brought into the United States. FSIS used the risk analysis framework to conduct a relative risk ranking to be used to allocate resources to monitor U.S. ports of entry for those food commodities that pose the greatest risk, examine different intervention strategies for preventing or reducing risks, develop biohazard identification protocols, and target training of personnel and develop educational campaigns to increase awareness. This assessment is expected to be completed in September 2003.

FSIS has taken preparation for food safety emergencies to a higher level with simulation exercises. Earlier this year, an exercise known as “Crimson Winter” was conducted to familiarize managers and staff with the operating environment that would exist during an outbreak of foodborne disease – the cause being intentional or unintentional. This exercise was very constructive for FSIS’ senior management, its emergency response team, its partners in the Food Threat Preparedness Network, and other relevant Federal and State agencies.

New Initiatives for 2003:

FSIS is implementing several new initiatives in order to continue toward its vision for food safety.

Train to the Vision. FSIS recognizes that to successfully implement consistent enforcement of its regulations, it needs to support the most critical component of FSIS effectiveness -- its workforce. Thus, one of the Agency’s top priorities is to aggressively address the training and education of its workforce. The Agency must ensure it is training employees to fulfill its vision. In order to ensure consistent and accurate inspection, FSIS has made a strong commitment to recruiting scientifically educated employees and retooling its entire training and education programs for all employees.

FSIS has crafted a two-fold plan on how it will enhance its workforce training capability. First, all training programs for all employees will be updated to incorporate a public health focus by integrating scientific and technical principles, including HACCP

validation, with training on technical and regulatory approaches to inspection, and use of enforcement responses, such as suspension of inspection, where appropriate.

Second, FSIS is moving to a system of delivering training that is as close to the employee's worksite as possible. This will involve regional training and regional trainers, as well as interactive sessions near the employee's work site and on-site training programs. Training and education programs must be easily accessible for both headquarters and field personnel.

FSIS is developing long-term strategies to build a more knowledgeable and empowered workforce. The program will incorporate both technical and managerial aspects so that FSIS has employees who can function well in a science-based environment. In addition, some of the training, particularly training involving new technologies and methodologies, must be carried out in conjunction with the regulated industry, so that both processors and inspectors share in the knowledge gained about the science behind the FSIS regulations, and how they must be applied to improve public health.

Food Safety Technologies. The Agency is working to encourage the regulated industry to target microbial interventions at appropriate control points to best protect public health. FSIS is establishing a technology review staff that will review interventions in order to expedite the implementation of safe interventions at slaughter and processing establishments. The Agency is refining guidance documents for industry on how to seek review of new technologies under an expedited review process. These enhancements follow earlier steps to facilitate the review process, including implementing a simultaneous review process (with FDA) for new ingredients. On April 29, 2003, FSIS issued a direct final rule to permit the use of any safe and suitable binder or antimicrobial agent in the production of meat and poultry products that are subject to a standard of identity or composition that provides for the use of such ingredients. This rule, effective June 30, will provide food processors with much more flexibility in using antimicrobial agents in standardized meat and poultry products.

Risk Assessment Coordination. In order to better focus its resources in food safety risk assessment activities, FSIS is planning the establishment of a risk assessment coordination team with USDA-wide membership. The goals are to strategically plan these activities and to improve coordination with researchers within and outside FSIS so that risk assessments are conducted more efficiently and utilizing the best science. As an added benefit, the Agency anticipates that such a focused approach will better enable use of risk assessments as tools to help identify future research needs.

Research Agenda. FSIS is working with the Research, Education, and Extension mission area at USDA to coordinate food safety research priorities and needs, including elucidating the ecology of various pathogens from farm to table. This research agenda will include a mechanism by which research needs in food safety are prioritized and conducted by the Agricultural Research Service (ARS) and the Cooperative State Research, Education, and Extension Service (CSREES), with input from other government agencies, academia, and stakeholders, in order to improve efficiency in the

use of resources, and effectiveness in application of research results to better improve food safety.

In order to improve coordination with ongoing research efforts in food safety, the Research, Education, and Economics (REE) mission area of USDA is planning to host a food safety research agenda symposium. The symposium will help initiate the development of a unified research agenda to complement industry and academic research as well as encourage external research directed toward this unified agenda. FSIS has created a new position of Strategic Manager for Research and Technology Transfer. The Agency has also recruited and hired a senior ARS scientist-veterinarian into this position. This new FSIS scientist will greatly facilitate FSIS communication and coordination with its USDA and other research partners.

Best Practices for Animal Production. In consultation with livestock producers, researchers, and other stakeholders, FSIS is developing a list of best management practices for animal production facilities such as feedlots to provide guidance in reducing pathogen loads before slaughter. FSIS is planning a symposium in coming months as a foundation for the development of guidelines that can be followed at the feedlot by producers to minimize carriage of human pathogens by food animals.

Baseline Studies. FSIS is making plans to conduct continuous baseline studies to determine the nationwide prevalence and levels of various pathogenic microorganisms in raw meat and poultry. In the past, limited baseline studies have been used to establish performance standards. While these performance standards have not been directly correlated with public health outcomes, they are an important part of verifying the sanitary operation of meat and poultry establishments.

The new baseline studies will take into account regional variation, seasonality and other critical factors. The continual nature of the baseline studies will provide both benchmark information on the national trends and a tool to assess performance of initiatives designed to reduce the level and prevalence of pathogens in meat and poultry products. These baseline studies will also provide important information for conducting risk assessments that support regulatory initiatives for reducing foodborne illness. These surveys will be important in establishing the link between foodborne disease and ecological niches, as well as levels and incidence of pathogens in meat and poultry. The net result will be more targeted interventions and effective elimination of sources of foodborne microorganisms.

Modernization of Enforcement Activities. A strong system of checks and balances is important to an effective food safety system. FSIS will continue to review authorities and regulations and will continue to work with interested parties to modernize and further enhance its compliance efforts.

Achieving the Next Level of the Food Safety Vision:

Emergence of previously unrecognized human pathogens, as well as new trends in food distribution and consumption, have prompted FSIS to consider the need for novel strategies to reduce the health risks associated with pathogenic microorganisms in meat, poultry, and egg products. Although great strides have been made in accomplishing FSIS' vision for food safety, it is necessary for us to pursue a course of action that will help us attain the next level of prevention, which is to predict, or anticipate, problems as much as possible before they arise. Toward this effort, FSIS intends to identify hazards early by analyzing prevalence and enforcement data, coupled with ensuring that the right corrective actions are taken promptly to minimize risks to public health.

Through analysis and discussions with stakeholders, FSIS has identified three issues that need to be addressed if FSIS is to attain this next level of public health protection.

Issue #1: Anticipate/Predict risk through enhanced data integration. To anticipate hazards involving meat and poultry products, FSIS must have the best available data to clearly identify the extent and nature of these hazards, in order to determine and calibrate an effective response. These data consist of FSIS' regulatory samples, as well as samples collected by food processing establishments. Thus, there is a need to improve access to, and analysis of food safety data from all reliable sources. This must be achieved in a responsible manner that serves public health.

Issue #2: Improved application of risk into regulatory and enforcement activities. FSIS recognizes the need to better document food safety problems as they occur, in order to analyze conditions that should be corrected in its science-based approach to pathogen reduction. For example, a better understanding of the prevalence and causes of food safety failures could allow FSIS to assess how best to address them. Data regarding the causes of food safety violations, either within a specific establishment, or within a class, can be utilized in order to better focus prevention and regulatory enforcement strategies.

Issue #3: Better association of program outcomes to public health surveillance data. FSIS has made great strides in preventing foodborne illness, which CDC has attributed in part to the implementation of HACCP. For example, the preliminary FoodNet report for 1996-2002 notes that the decline in the rate of *S. Typhimurium* infections in humans coincided with a decline in the prevalence of *Salmonella* isolated from FSIS regulated products to levels below baseline levels before HACCP was implemented.

However, there still is a need to determine how specific policies affect public health. In order to accomplish this, data that links foodborne illness outbreaks with specific foods needs to be obtained and documented, so that it may be linked with prevalence data of specific pathogens in specific foods. The latter activity can be best accomplished through an ongoing commitment to conducting baseline studies for various foodborne hazards. As previously mentioned in this document, such an activity is one of the initiatives currently being pursued by FSIS. However, to complete the linkage with public health outcomes, a strong connection with human health surveillance data is needed.

Accomplishing this task will help point FSIS regulatory efforts towards focusing its inspection and enforcement on those practices where risk is deemed to be highest, resulting in a more efficient use of government resources. Toward this goal, FSIS is working with CDC's National Center for Infectious Diseases to design and support studies that enable definite connections to be made between occurrence of specific pathogens in specific foods and the occurrence of human foodborne illness.

The Agency intends to engage the scientific community, public health experts and all interested parties in an effort to identify science-based solutions with public health outcomes. It is FSIS' intention to pursue such a course of action in the coming months, in as transparent and inclusive a manner as possible. The resulting strategies should help FSIS continue to pursue its goals and achieve its mission of reducing foodborne illness.