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# The Future of FSIS Veterinarians: Public Health Professionals For the 21<sup>st</sup> Century

*Report of the Blue Ribbon Task Force composed of a diverse group including veterinarians from inside and outside of FSIS, a variety of FSIS management personnel, and individuals affiliated with academia, non-government organizations, and foreign governments, convened in early 1999. The findings and recommendations contained in this report embody the collective thinking of the Task Force. The intent of this report is to fuel a renaissance in thinking about how veterinary medical expertise is considered, but more importantly, how veterinary medical expertise is cultivated, nurtured, and utilized.*

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## EXECUTIVE SUMMARY

In 1999, the Department of Agriculture's Food Safety and Inspection Service (FSIS) convened a select panel charged with examining how veterinarians and the art and the science of veterinary medicine, should be utilized in food safety. This diverse Blue Ribbon Task Force included veterinarians from inside and outside of FSIS, a variety of FSIS management personnel, and individuals affiliated with academia, non-government organizations (NGOs) and foreign governments. The findings and recommendations herein contained embody the collective thinking of the Task Force. The Task Force met numerous times through 1999. In February 2000, FSIS held a public meeting and solicited comments on a draft of this report.

Task Force Members hope the reader will view their findings as a fundamental work that establishes a considered baseline of reasoning about the role of veterinarians in public and animal health, and in food safety, that must be continuously reconsidered and reevaluated. The role of the veterinarian as the purveyor of knowledge and expertise that will act as the foundation for the bridge between agriculture and medicine is paramount. Therefore, the intent of this report is to fuel a renaissance in thinking about how veterinary medical expertise is considered, but more importantly, how veterinary medical expertise is cultivated, nurtured, and utilized.

The profession of veterinary medicine, and the individual veterinarians representing the profession, are continually evolving with the discovery of new knowledge. The challenge is to institutionalize internal process controls which take full advantage of this new knowledge to upgrade food safety oversight. The system must evolve with the science and food safety professionals must continuously upgrade their skills. The following pages contain five issue areas that the Task Force considered predominant for immediate consideration. These recommendations require a recasting of how the veterinarian is viewed inside and outside the Agency and even the how the individual veterinarian views himself or herself will change. Many of the recommendations are obvious and easily implemented while other important changes are more difficult but worth long-term investment. Real progress will require continued leadership emphasis and support, workforce buy-in and sustained dedication to upgrading the organization's ability to provide effective oversight of food safety. Nevertheless, hard labor produces great results and the Department of Agriculture's Food Safety and Inspection Service of the 21<sup>st</sup> century will be born.

In 1996, FSIS issued the Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) systems final rule to control and reduce pathogens (harmful bacteria) on meat and poultry. Federal and State meat and poultry plants must adopt HACCP, a system based on hazard prevention, with performance standards set by FSIS. Effective implementation of HACCP by industry will ensure safe food and should alter relationships with FSIS. Astute utilization of veterinary resources will enhance farm-to-table food safety. FSIS employees will increasingly make science-based judgments that impact a broad range of entities.

Despite major changes, many still perceive FSIS veterinarians employed in the field as technicians rather than as public health professionals. Their role remains unclear. To meet its mandate for the 21st century, FSIS must better utilize the skills and talents of its current veterinary workforce and enhance efforts to recruit and retain highly qualified and motivated veterinarians in the future.

The Task Force developed recommendations around five major issues, which are discussed in detail later in this report. The issues are: defining the role of the FSIS Veterinarian; education, training, recognition and recruitment; development and refinement of partnerships; information management centered around animal identification; and veterinary contributions to international credibility.

The role of veterinarians in FSIS (recommendations start on page 15) needs to transition from concentrating primarily on pathology removal and personnel management to public health professionals who oversee the effectiveness of farm-to-table food safety systems. FSIS should utilize veterinary knowledge and expertise to evaluate the legitimacy and effectiveness of food safety controls on the farm, during live animal transport and handling (including humane slaughter oversight), throughout the entire plant (including processing), transportation to markets, distribution, retail, and final preparation and handling. FSIS should assess veterinary and other personnel needs and evaluate the skills of the current workforce. FSIS should improve the utilization, development, and recruitment of needed employee skills. Leadership must clearly communicate veterinary career opportunities as food safety and public health professionals. FSIS should develop an infrastructure which maximizes the utilization and development of veterinary and relevant scientific expertise to resolve international animal health and overlapping food safety issues and lead the domestic transition of the veterinary in-plant workforce.

Education, training, recognition, and recruitment (recommendations start on page 22) are the basic elements FSIS must enhance, develop, resource and sustain to build an effective workforce for the 21<sup>st</sup> century. Development of a robust continuing education and training program in both traditional and non-traditional specialties will help maximize the value of employees, including veterinarians. This must be emphasized in the budget with sufficient funds protected to assure 10% of the workforce is always involved in employee development, training or education. FSIS should take full advantage of automation to efficiently disperse information to enhance the effectiveness of food safety programs. Most importantly, FSIS must develop a culture which rewards and encourages continuing human resource development (advanced degrees in relevant disciplines, board certification, continuing education, leadership training and development). The nation must invest in the future of effective food safety oversight or risk further erosion of consumer (international and domestic), industry, and public confidence.

Partnering with diverse farm-to-table stakeholders is necessary to achieve the common goal of safe, wholesome, and affordable food. National, state and local government agencies need to interact to expand food safety activities and services from farm to table. Veterinarians can contribute important skills in these

partnerships. Recommendations found on page 26 provide some specific ideas for improving the efficacy of government oversight.

Information management systems and positive animal identification are fundamental tools for a food safety system today and in the future. These tools must constantly be updated and refined in order keep pace with worldwide industry and production advances in food safety. Specific recommendations start on page 31. The nations must equip and enable food safety professionals with state-of-the-art equipment and tools needed to enhance food safety, improve productivity, and save lives.

FSIS needs to develop and maintain stronger international relationships, which complement the increasing global movement of safe food. A cadre of scientific and veterinary expertise should more frequently interact with relevant technical experts and regulatory managers working on related issues beyond U.S. borders. Active involvement will enhance international credibility in market access negotiations yet preserve legitimate food safety controls and preclude the introduction of exotic animal diseases. Specific recommendations begin on page 35.

## **PURPOSE AND SCOPE**

The Food Safety and Inspection Service convened a Task Force to look at *The Future of FSIS Veterinarians: Public Health Professionals For the 21<sup>st</sup> Century*. The Task Force was charged with developing recommendations on the roles of veterinarians in meeting the Agency's needs, particularly with the implementation of Hazard Analysis and Critical Control Point (HACCP) systems and pathogen reduction requirements for meat and poultry. Moreover, the Task Force planned to look beyond current statutory and regulatory limitations to a visionary future. FSIS Administrator Thomas J. Billy asked the Task Force to focus on the following areas:

- Define how veterinarians can contribute to the Agency's vision of risk-free food.
- Identify the opportunities to best utilize the FSIS veterinarians to optimize public health from farm to table.
- Assess the impact of HACCP on the duties and role of veterinarians.
- Identify expertise needed by the Agency as it relates to skills possessed by veterinarians.
- Define the international role of veterinarians and assess the implications within the international community.
- Identify potential uses of technology.

## **THE TASK FORCE**

The select 23-member Task Force is from FSIS (both headquarters and field), other Federal and foreign agencies, associations, and universities. It includes veterinarians and others who can help identify the role of veterinarians in the context of Agency needs. The Task Force Co-Chairs are Dale Boyle, DVM/MPH, Executive Vice President, National Association of Federal Veterinarians, and Ronald Hicks, Deputy Administrator, Office of Management, FSIS. A brief biography of each Task Force member appears at the end of this report.

## BACKGROUND

Government inspection of meat began in Europe, supported mainly by physicians. In Germany between 1779 and 1819, Johann Peter Frank, a pioneer in social medicine, emphasized the need for central slaughter in public abattoirs with inspection of slaughter animals and meat for zoonotic diseases by specially trained veterinarians. In Dresden, Germany, Friedrich Kuchenmeister developed scientific meat inspection by veterinarians.

In England, in 1862, veterinarian John Gamgee led a commission which recommended a national system of specially trained veterinarians to inspect meat sold in public trade. France, Austria and Prussia also were developing meat inspection systems. By 1880 in England and continental Europe, the role of veterinarians was being accepted by physicians, demanded by society, and implemented into law by politicians. Robert Van Ostertag, the "Father of Veterinary Meat Inspection," developed a rigorous scientific inspection program in Berlin in the 1890s. He wrote: "Veterinarians must do the important tasks of food hygiene for public health."

In the colonial United States, raising livestock and marketing meat was a local activity. Often, people grew their own food and raised a few livestock. Consumers generally knew the source of their food. Writings, but little action for safety inspection of meat from zoonotic diseases (diseases communicable from animals to humans), appeared as early as the 1600s. In 1642, a Boston city ordinance placed animal slaughter under city control. In 1879, the Board of Health of Brooklyn appointed the first veterinary inspector, Lachlan McLean, who advocated that veterinarians be in charge of meat inspection.

By the mid-1800s, U.S. cities were growing. Transportation systems developed and increased the distance between food production and consumers. Meat was produced in large packing plants, shipped in interstate commerce, and exported to Europe. In the late 1800s, England restricted importation of U.S. cattle for slaughter and several European countries excluded U.S. pork because of *Trichinella*. In 1890, the U.S. enacted a law requiring veterinary inspection of live animals for export and inspection of cured meat for both export and interstate commerce. While the act was comprehensive, its application to domestic trade was limited. However, the *Guide to Practical Meat Inspection*, written in 1900, stated that the act "opened the way whereby the veterinarians are the profession appointed for this work. Therefore the practice of meat inspection rests in the hands of veterinarians." Specially-trained "stock inspectors" were also authorized to be "to the veterinarian what the nurse or midwife is to the physician." The act was amended in 1891 to establish the Federal Meat Inspection Service as part of the Bureau of Animal Industry in the U.S. Department of Agriculture, and to require antemortem (before slaughter) and postmortem (after slaughter) inspection for meat for export. The act was further strengthened in 1895, with stricter inspection requirements for interstate transport of meat.

The Meat Inspection Act of 1906 signaled the real beginning of domestic meat inspection in the United States. A year earlier, Upton Sinclair published *The Jungle*, portraying unsanitary conditions in Chicago slaughterhouses. The book caused a public and political outcry. Meat sales around the country dropped nearly a third. The 1906 Act began a system of continuous veterinary inspection in slaughterhouses. It called for mandatory inspection of all meat and meat products moving in interstate commerce. It required antemortem and postmortem inspection of cattle, hogs, sheep, and goats. It established sanitary standards for slaughter and processing facilities. The inspection workforce in packing plants became teams of inspectors specifically trained to separate abnormal animals at antemortem and abnormal carcasses at postmortem. Veterinarians with advanced training in inspection further examined the separated animals and carcasses and made final dispositions. Veterinarians also collected tissues for laboratory examination, prepared records and submitted reports. This model has been continued in the United States through subsequent meat and poultry acts.

At that time, there were 163 plants under Federal inspection; there are now over 6,000. In 1927, Congress created the agency that later became the Food and Drug Administration (FDA). FDA remained in the Department of Agriculture (USDA) until 1940. The FDA has authority for all foods not covered by the Meat and Poultry Products Inspection Acts.

The first attempts at poultry inspection began in 1926. Until then, many consumers bought their poultry from farmers or markets, either live or "New York dressed" with only the blood and feathers removed. Consumers eviscerated poultry just before cooking. Voluntary poultry inspection began in 1926, with canning plants seeking most of the inspection. By the 1930s, the industry produced ready-to-cook poultry. World War II increased demand for poultry products. The military had its own specifications and required either its Veterinary Corps or USDA to inspect all poultry products consumed by the armed forces. Congress conducted many hearings on poultry inspection and in 1957 passed the Poultry Products Inspection Act, which established mandatory antemortem and postmortem inspection of poultry entering interstate commerce and mandatory inspection of slaughter and processing facilities.

Major revisions in the slaughter and inspection of meat and poultry were established in the Humane Slaughter Act of 1958, the Wholesome Meat Act of 1967, the Wholesome Poultry Products Act of 1968, and the Humane Methods of Slaughter Act in 1978. These laws, which placed direction of local humane slaughter and inspection operations under veterinarians, are in force today. They set standards and requirements for commercial slaughter and processing plants operating under either Federal or State inspection.

Public health in the United States changed significantly since the first meat inspection acts were enacted. At that time, the leading cause of human illness and death was infectious disease. Today, chronic diseases such as cancer and cardiovascular disease cause more deaths. Microbiological hazards remain a significant risk to human health via the food supply. Chemical and physical hazards



must also be effectively controlled and are of particular concern to certain international trading partners. There is also a growing concern and controversy about the use of antimicrobials in animal feed and in treatment of animals and the transfer of antimicrobial resistance by these pathogens in the food supply and the effectiveness of on-farm controls.

From the beginning of the 20<sup>th</sup> Century, USDA inspectors have relied primarily upon organoleptic examination of products, equipment, and facilities to detect and correct food safety problems and to conduct other consumer protection activities, first in meat plants and later in poultry plants. At the beginning of the century, diseased animals were an important human health risk. Today, most animals are slaughtered in large automated facilities which specialize in younger, healthier, and more uniform animals, with few diseases that constitute foodborne threats to humans. Cull animals generally go to specialized plants where veterinary disposition still plays an important role in preventing pathology and drug residues from entering the human food supply. Today, most meat- and poultry-related foodborne disease outbreaks trace back to animals or birds free from signs or symptoms of disease. Invisible microbiological hazards are the greatest risks to human health.

Animal health has changed as well. Many infectious animal diseases are now controlled. Animal health improvements have increased animal production. More animals are slaughtered at a younger age. Animals and birds are produced more efficiently with the help of growth promotants and genetic manipulations. Modern production practices will continuously evolve.

Studies by the National Academy of Sciences (NAS), the U.S. General Accounting Office (GAO), and FSIS itself have established the need to fundamentally change the FSIS inspection program. The studies have consistently recommended that the Agency reduce its reliance on organoleptic inspection of individual animals for food safety, shift to prevention-oriented process control inspection systems based on risk assessment, and redeploy its resources in a manner that better protects the public from foodborne diseases. Outbreaks of microbial foodborne illness caused by *Salmonella*, *E. coli* O157:H7, *Campylobacter* and *Listeria* and recalls of unsafe meat and poultry over the last several years have reinforced the need for a more effective food safety regulatory system, based upon the best science available.

The Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems Final Rule was published July 1996. The new law fundamentally changed the way FSIS approached its mission and required a major cultural shift by all Agency employees. The rule states the FSIS goal:

*FSIS believes its food safety goal should be to reduce the risk of foodborne illness associated with the consumption of meat and poultry products to the maximum extent possible by ensuring that appropriate and feasible measures are taken at each step in the food production process where hazards can enter and where procedures and technologies exist or can be developed to prevent the hazard or reduce the likelihood it will occur.*

The Agency has targeted a 25% reduction in foodborne illness attributed to meat and poultry by the end of the year 2000. FSIS is redeploying its resources to reduce foodborne illness and to provide regulatory oversight within its statutory authorities along the farm-to-table continuum. For instance, FSIS envisions intensifying its food regulatory activities, within its statutory authorities, to address safety hazards and other consumer protection as product moves out of the plant and is transported, stored, and distributed to consumers.

## **WHAT VETERINARIANS BRING TO THE FOOD SAFETY TABLE**

Veterinarians bring a broad combination of knowledge and skills to the interdisciplinary farm-to-table public health team. To obtain a Doctor of Veterinary Medicine (or Veterinary Medical Doctor) degree in the U. S., they usually complete four years of pre-veterinary and four years of veterinary college education. Their education includes extensive clinical practice in diagnosing diseases in seven major animal species. Their education includes extensive knowledge of microbiological, chemical, and physical health hazards of food animals. Upon graduation, Doctors of Veterinary Medicine have the basic foundation for building advanced public health and preventive medicine skills in risk assessment, management, and communication, and in human and animal population epidemiology and statistical evaluation. Many veterinarians also have advanced degrees such as a Master of Public Health, Master of Science, PhD, or Master of Business Administration. They often take post graduate training to qualify for Board Certification in Veterinary Preventive Medicine, Pathology, Microbiology, Toxicology and other specialties. Graduates of foreign veterinary colleges must be a U.S. citizen, and pass an English proficiency examination and the U.S. National Board for Foreign Graduates to be employed by FSIS.

Doctors of Veterinary Medicine bring critical skills to ensuring the safety of foods of animal origin:

- ◆ Veterinarians are the predominant internationally-recognized authority to audit and inspect foreign establishments that export animal foods to the United States. They assess the safety of animal products from foreign sources, including freedom from unsafe levels of chemical residues, exotic pathogens, and emerging agents of public health importance. Veterinarians are recognized internationally for possessing the scientific competence and integrity to sign certification for animal products attesting that the products were produced within a system of controls which meet both food safety and disease freedom requirements of importing countries. They help ensure public and international confidence in the safety of the animal-based food supply.
- ◆ Veterinarians have an in-depth understanding of production practices and animal disease and the linkages between them. They can identify and scientifically evaluate the potential human and/or animal health significance

of the wide variety of clinical signs in animals submitted for slaughter (antemortem inspection). These skills help veterinarians make individual animal disposition judgments and target animals that may need more intensive inspection and/or diagnostic work. Examples include: (1) surveillance for exotic or notifiable diseases (e.g., bovine spongiform encephalopathy, brucellosis and tuberculosis); (2) monitoring for disease or physiological states which can increase the potential for, or significance of, contamination occurring during processing (e.g., severely stressed animals tend to be high shedders of *Salmonella*); (3) assessing suitability for entering slaughter of non-ambulatory animals (downer animals), injured animals or animals approaching parturition (about to give birth), and then examining them after slaughter; (4) checking for signs indicating likely recent drug treatment or exposure to contaminants; and (5) monitoring for disease or physiological states which make the animals unsuitable for slaughter for human consumption (e.g., septicemia, toxemia etc); humane slaughter oversight. While other specialists may be able to evaluate animals as "normal" or "not normal," a veterinarian should make a specific diagnosis and interpret the significance of the findings. This information is increasingly important in ensuring reliability of producer and processor quality assurance programs in the farm-to-table continuum.

- ◆ Veterinarians have knowledge and experience in pathology, microbiology and toxicology to evaluate human health hazards during the slaughtering process (at postmortem). They are able to evaluate and correlate risks that may impact food all the way to the consumer. Suspicion or diagnosis of exotic disease is reported to Animal and Plant Health Inspection Service (APHIS) veterinarians immediately to facilitate traceback and prevent local or national disease spread. Doctors of Veterinary Medicine are trained to assess lesions, microbiological and chemical residue findings and other laboratory data to advise animal and human health authorities and industry on prevention, decontamination and/or product recalls. Veterinarians can collect and evaluate specimens for specific hazard identification and for monitoring for chemical residues, infectious diseases, emerging pathogens, and zoonotic parasites.
- ◆ The scientific training and diagnostic skills of veterinarians make them particularly well equipped to identify and solve problems. They understand those factors which contribute to food safety from farm to table. This enables them to assess and verify HACCP plans and systems at production, processing, and retail levels. Their perspectives and evaluative skills extend well beyond applying the FSIS regulations. They are well trained to perform oversight and verification, assess performance standards of FSIS food inspection and microbiological laboratory personnel, and verify industry quality and safety controls throughout the food chain.
- ◆ Veterinarians have a strong foundation upon which they can build capabilities to supervise, train, and interact with others. This includes knowledge and professional experiences in record keeping, systems

analysis, administrative skills, and client education. Veterinarians have skills in developing, implementing, and analyzing public and animal health policies, correlating and analyzing information systems, managing and leading complex and extensive government programs and personnel, and building national and international partnerships for food safety systems. Veterinarians can train food inspectors, laboratory personnel, and sanitarians. These skills will be especially important in helping educate very small plant operators to meet pathogen reduction and HACCP requirements.

- ◆ Veterinarians are well-trained and experienced in animal welfare during production and in humane handling as animals are transported, unloaded, stunned, and handled at plants. They are well able to evaluate compliance with the Humane Slaughter Act, especially proper stunning, bleeding, rail insensibility, pen maintenance and handling, truck unloading procedures, and handling of non-ambulatory animals.
- ◆ Outside of FSIS, veterinarians provide leadership to human and animal health programs in other Federal and State agencies and promote public health and the safety of animals presented for slaughter. They help prevent animal disease, protect against exotic diseases, certify animal health, and control animal drug and agricultural chemical use.
- ◆ Veterinarians in food animal practices are first line promoters of the production of animals that are healthy and free of violative residues and other public health hazards. They prevent, control, and eradicate animal diseases. Skilled in examining animals for specific public health hazards, they form important links to FSIS veterinarians by validating and maintaining food safety and quality assurance certification programs and auditing systems.

## **ISSUES**

### **I. DEFINING THE ROLE OF THE FSIS VETERINARIAN**

***Issue Statement:***

FSIS must define the roles of FSIS veterinarians to meet the challenges of HACCP implementation within the farm-to-table continuum and to fulfill their functions as FSIS public health officials.

***Discussion:***

The following discussion is divided into two parts. One section focuses on the role of the FSIS veterinarian in the plant and the other section highlights the variety of

roles outside the plant.

### *1. Roles and Responsibilities of the FSIS In-plant Veterinarian*

The 1996 Pathogen Reduction/HACCP (PR/HACCP) rule fundamentally changed FSIS's approach to its food safety mission. The historic role of FSIS veterinarians in plants was to prescriptively regulate processes and procedures to ensure product safety, plus truth in labeling. The rule clarifies industry's responsibility to ensure food safety. Under the PR/HACCP rule, the FSIS role is to verify in-plant compliance with regulatory performance standards. For example, if a plant proposes a unique method to meet the performance standard for reducing *Salmonella*, the veterinarian could verify that the method would allow the product to meet the performance standard. This might include evaluating scientific literature, monitoring processing controls, examining in-plant data, and independent laboratory verification of end-product compliance.

This change from a prescriptive role to a more flexible oversight of PR/HACCP systems requires broad-based scientific knowledge, critical thinking, and the authority to make professional judgments at the lowest level. HACCP systems require science-based processes to control hazards. Veterinarians can better utilize their knowledge, skills, and abilities to evaluate control efforts within the HACCP system resulting in improved food safety. However, several issues need to be addressed before new roles for the FSIS veterinarian can be fully implemented.

**The first major issue is that FSIS needs to redefine the responsibilities of veterinarians to ensure adequate time for food safety activities for HACCP implementation.** The historic role of FSIS in-plant veterinarians has been limited to detecting lesions; testing and sampling for chemical, drug, and pesticide residues; supervising food inspectors; and performing other procedural duties dictated by regulations, directives, and managerial requirements. Examples of such duties include:

- Providing line breaks for bargaining unit employees
- Performing residue "quick tests"
- Preparing and sending samples to laboratories
- Staffing and scheduling of line personnel
- Administrative supervision of inspectors (Recommend delegation of first-line supervision)
- Facilitating labor and management relations (e.g., grievances and appeals, EEO actions)
- Resolving employee and industry disputes

In many plants these duties consume the entire day and prevent FSIS veterinarians from assisting in evaluating food safety and verifying HACCP plans. Effective HACCP oversight requires flexibility, informed judgments, and continuous learning within a science-based inspection program. This oversight role requires

veterinarians to be able to effectively delegate day-to-day in-plant line inspection and administrative duties to senior inspection personnel.

**A second issue is that FSIS needs to define, clarify, and expand the in-plant veterinarian's role as a systems manager with the overall responsibility for assessing data on incoming animals, materials, and in-plant activities.** This would include performing trend analyses for meeting food safety performance standards. This expanded role will require overseeing the entire process within plants to verify HACCP compliance and to assess risks. Using information from other experts, multiple data sources, and visual observations, veterinarians should be empowered to make professional judgments about the adequacy of HACCP systems. One example of this evaluation role is chemical residues prevention programs where animals that have been raised under Good Production Practices designed to eliminate risks for contamination could be handled differently in a plant's HACCP system than animals from unknown sources. Higher-risk plants would be evaluated by the veterinarian to determine what strategy would ensure meeting performance standards established to meet requirements for food safety. This strategy enables the FSIS veterinarians to provide assurances that industry process controls are being applied and are likely to be successful in meeting the industry's responsibility to produce safe foods.

**A third issue that would help better define the role of the in-plant FSIS veterinarian is to recommend that FSIS inspection oversight be based on an assessment of public health risk.** FSIS's current staffing of facilities is based on numbers of animals slaughtered rather than on their potential as risks to human health. Premium high quality plants that have effective HACCP systems, and produce massive quantities of uniform product tailored to meet customer demands for consistent quality, need fewer inspection personnel to protect the public's health. Conversely, meat production facilities still exist that have not modified their methodologies or facilities significantly in the last 40 years. Some of these plants improve only when threatened or penalized. Many plants possess less effective quality programs where production and economic concerns may cause them to take risks, which could affect public health. Sufficient FSIS staffing must remain present to encourage and assure industry adherence to food safety principles.

Some plants specialize in slaughtering animals not utilized by the premium animal facilities. They slaughter spent layers, dairy cattle, inefficient breeding stock, and injured, diseased, and downer animals. Stringent sanitation and effective process controls are needed to produce safe food. Since these facilities slaughter animals with a greater percentage of disease and pathologic conditions, as well as a greater likelihood of drug residue violations, veterinarians must provide more intense oversight and scrutiny to ensure food safety. FSIS needs to improve food safety oversight of cull slaughter operations by reassessing and maintaining an appropriate level of veterinary staffing in these operations. In conjunction with increased staffing, it is also suggested that the Agency provide promotions and other incentives to encourage, motivate and retain an effective veterinary workforce at these more challenging facilities. Greater utilization of such facilities for

education and training would be of considerable benefit to the Agency as well.

Establishments can use the data on identifiable risks to modify their HACCP plans for continuous process improvement. For example, livestock production practices which reduce food safety risks at slaughter could enable plants to modify HACCP plans and may support Agency revision of a science-based standard. Such modifications will require oversight from a broad-based professional who can assess the potential changes and public health impacts of live animal and processing risk reduction procedures. These activities require collation of a wide range of information resources both within and external to the Agency. Such activities will require timely interactions between field (in-plant, circuit, and district) veterinarians and other Agency programs (e.g., the Technical Service Center, Office of Public Health and Science, and Office of Policy Program Development and Evaluation). In addition, the field veterinarians will need to interact with industry personnel, State and private veterinarians, animal producers, academia, consumer groups, and other governmental entities to build cooperative efforts to ultimately reduce foodborne illnesses.

**The fourth issue is the role of in-plant veterinarians in developing cooperative relationships to continually improve HACCP systems and reduce foodborne illnesses.** Specifically, the effectiveness of HACCP implementation is limited by lack of experience and expertise in HACCP systems and resistance to change at all levels of FSIS. Lack of teamwork, mixed messages and unclear decisions discourage industry cooperation and destroy employee morale. Effective representatives of the veterinary profession, microbiology, food science, compliance, and processing should work together to design effective HACCP oversight that encourages industry innovation and progress. FSIS needs a more diversified HACCP implementation team at all levels. This challenges veterinarians to demonstrate their qualifications as public health program managers. During the years of transition to industry's full implementation of HACCP, veterinarians must manage traditional inspection and lead the change into the new science-based system. Such a major change is difficult and the complexity of enforcement procedures adds to the difficulty for inspectors. Veterinarians as public health program managers must commit to study and understand HACCP and lead the workforce to fully understand **and implement effective HACCP systems oversight.**

Successful implementation of farm-to-table HACCP-compatible systems requires that all groups within the food production system work cooperatively to define and maintain food quality systems and safety objectives. Exchange of timely data is essential to process and product evaluations and the resulting food safety decisions. Evaluating information is part of the process for ensuring accountability for food safety.

To successfully achieve these cooperative relationships, FSIS should include in position descriptions of field veterinarians specific responsibilities to interact with local, national, and international stakeholders in food safety. FSIS veterinarians are

well-placed to team with local authorities, producers, veterinary practitioners, and other partners to share information about HACCP systems and progress in food safety.

Cull animal slaughter facilities also provide a great source of animal health/disease information that could help improve herd and flock health and ultimately food safety. The veterinarian could play a key role in compiling and analyzing data from these facilities, and work in partnership with industry, State veterinarians, and APHIS to enhance food safety and animal health. These are also the facilities where antibiotic and chemical residues and humane issues are most probable. Veterinarians overseeing HACCP systems should provide important feedback to plant leadership, veterinary practitioners, commodity groups, and local State and Federal partners to encourage risk reduction systems, animal identification, and other good production practices of animal suppliers to cull animal slaughter facilities to help ensure food safety, quality, and animal welfare.

**The fifth issue is the role of the veterinarian in risk-based assessments in the farm-to-table continuum.** The HACCP farm-to-table concept requires a risk-based assessment at each link in the food chain. Acceptable risk levels within the system can be set using performance standards for measurable attributes at appropriate locations within the farm-to-table spectrum. These performance standards will dictate the levels of activity pursued by each chain member to contribute to increased product safety. Communication of these actions taken to meet the performance standards must be effectively monitored as the product moves from farm to table. Every chain member must have necessary expertise to evaluate the products being supplied to their operation and their impacts on achievement of performance standards.

In slaughter plants under FSIS inspection the major input is the live animal. Antemortem examination will detect visible physical defects and assess the general health of these animals. Additional evaluations are necessary to detect animals with potential chemical residues, inapparent physical defects (needles, metal, etc.), and zoonotic disease conditions. One method to facilitate these evaluations is to couple the use of Good Production Practices at the farm level with reliable documentation. Properly-educated FSIS veterinarians could perform system reliability audits, including records verification. FSIS veterinarians could also verify supportive in-plant activities necessary to meet relevant performance standards. One example of this evaluation may be chemical residues prevention programs. If FSIS veterinarians verified supporting documentation demonstrating that the animals were raised under Good Production Practices designed to eliminate risks for contamination, these animals could be handled with minimal tissue testing. Likewise, FSIS veterinarians performing inspection on higher-risk groups or plants not meeting performance standards would implement a more rigorous testing strategy to ensure these standards are met. This strategy would add value to the farm-to-table spectrum by decreasing consumer risks and by reducing process costs while improving food safety.



Ultimately plants will be verified based on their ability to meet food safety performance standards. These strategies enable FSIS veterinarians to provide assurances that industry process controls are being applied and are likely to produce safe foods. The concept of industry being held accountable for meeting performance standards, and verification being performed by FSIS, is the premise for the HACCP-Based Inspection Models Project (HIMP). In the HIMP project, there are performance standards being set for food safety and consumer protection. FSIS provides oversight and verification to ensure the standards are met.

To effectively energize this vision for the evaluation of practices and their likelihood of improving food safety, FSIS veterinarians will require additional educational skills enabling the auditing of production and processing practices. Knowledge of zoonotic disease control should also be refreshed and strengthened. These skills may be most directly applied at the plant level, but will require additional emphasis in technical process evaluation and in policy development. At the in-plant level, veterinarians should have sufficient education in auditing processes to maintain accredited auditor status. These skills will be central to the interactions among in-plant FSIS veterinarians, practitioners, and other government veterinarians involved in the development and oversight of on-farm quality programs. Additional skills, such as food processing and engineering, may be required to verify safety of novel plant actions designed to exceed existing standards and to continually improve food safety and quality. These specialized skills may be available through the Technical Service Center or at regional sites outside the individual plants, but they must be integrated with the in-plant activities. Such actions would enable FSIS to ensure the maintenance of the safety standards while encouraging industrial innovation and excellence.

Producers and the food industry are charged with the responsibility for producing safe foods. The implementation of HACCP principles throughout the farm-to-table spectrum makes it imperative that the responsibilities for risk management be apportioned to the appropriate areas of this spectrum. The role of FSIS in oversight of this process requires a firmly-grounded understanding of the science-based effects of industry and producer group initiatives to improve food safety. Mutual respect and trust, and the recognition that other private and public partners may be able to deliver effective risk control programs, are central to this process. Industry-generated control programs require science-based evaluation by FSIS to modify the list of acceptable in-plant practices based on a demonstrable reduction of risks. This requires cooperation and coordination with a wide spectrum of participants to ensure that new recommendations are acceptable, verifiable, and equivalent to, or exceeding, current performance standards and practices. For example, if a set of verifiable on-farm actions can be accomplished that will deliver a product to meet or exceed performance standards equivalent to more established in-plant procedures, FSIS should develop the pathways for a science-based evaluation of equivalency and implementation of appropriate oversight methods. FSIS veterinarians offer the capacity to audit and verify animal treatment and health records prior to entry into the harvesting processes. These evaluations require an intimate knowledge of the industry spectrum to be overseen and a flexibility and scientific rigor which fosters cooperation and trust with the industry and its clientele. The unique education

required for the veterinary profession coupled with their practical experience position FSIS veterinarians to effectively make these evaluations.

**Sixth and finally, the role of veterinarians to oversee and enforce the Humane Slaughter Act is also evolving in the HACCP era.** The American Meat Institute in collaboration with FSIS and Dr. Temple Grandin has adopted guidelines for objective criteria for stunning and handling livestock at slaughter. Industry envisions a preventive-type system that could be easily self-audited. The role of the veterinarian would be to oversee this preventive system and its audited procedures and to verify they are meeting the requirements of the Humane Slaughter Act and any performance standards defined by FSIS. FSIS should move forward to educate its field force on these guidelines and to develop performance standards that could be audited, verified and overseen by veterinarians. In addition, the link between food safety, disabled animals and animal handling practices needs to be further researched.

## *2. Roles and Responsibilities of the FSIS Veterinarian Outside the Plant Environment*

While FSIS field experience is critical, veterinarians qualify and should compete for many other positions. Some of these positions may not directly require a veterinary medical degree; however, they provide invaluable support to the inspection program. For example, in addition to HACCP and scientific staff positions, FSIS veterinarians should take advantage of their expertise and training to apply for positions as program managers, policy analysts, compliance officers, and leaders.

Veterinarians are qualified by a broad biological education and experience to deal in a wide range of areas important to food safety, including, but not limited to:

- ✓ Disease recognition, especially zoonotic diseases
- ✓ Emerging pathogens
- ✓ Bioterrorism threats
- ✓ Foreign animal disease threats
- ✓ Public health
- ✓ Epidemiology (including outbreak investigations)
- ✓ Science-based certification and auditing processes
- ✓ Animal science and population medicine experience
- ✓ Pathology
- ✓ Parasitology
- ✓ Microbiology, virology, bacteriology
- ✓ Comparative medicine and multi-species experience
- ✓ Chemistry/toxicology and pharmacology
- ✓ Drug resistance mechanisms

Furthermore, the Agency can tap into the veterinarian's analytical and problem-solving skills in order to perform broad public health policy development and

evaluation, risk assessment, data management and evaluation, leadership, and administrative activities which have both national and international impact. In many agencies, such as State health departments, veterinarians serve as administrators, environmental health officers, and epidemiologists. The Agency should also consider a more integrated approach to public health policy development and implementation. This can be accomplished by more readily utilizing the field (Districts and Technical Service Center) expertise in developing policies and action plans. Veterinary knowledge coupled with the skills of employees from all disciplines, located at various organizational levels (both vertically and horizontally), and from headquarters and the field, will ensure successful implementation of new programs.

As the Agency expands the role of veterinarians to include a wider range of positions, the Agency will be better able to take advantage of the skills offered by its current workforce. Throughout FSIS, many employees have advanced degrees, Board Certification, and knowledge and skills that are unrecognized and underutilized in their current positions. For example, veterinarians currently in the Agency hold graduate degrees in molecular biology, pathology, microbiology, toxicology, business administration, etc. Many are also multi-lingual and could assist the Agency in activities such as reading labels, communicating with a migrant workforce, and making presentations. In these times of tight budgets and limited resources, the veterinarians' varied background can allow the Agency to cross-utilize its current workforce to meet changing priorities and provide new roles and opportunities in food safety.

In summary, because of their broad-based education, veterinarians can fill a variety of positions in FSIS, both within and outside the plant, including those positions which may not be classified in the GS-701 Veterinary Medical Officer series — the numerical occupational designation used for veterinary positions in the Federal Government. The Agency should readily take advantage of this expertise and the various skills many veterinarians bring to the job. In addition, FSIS should educate its workforce, including veterinarians and selecting officials, that the veterinary workforce may qualify for other positions outside the plant environment, such as policy analysts, epidemiologists, program managers, consumer safety officers, compliance officers, etc., and that they do not lose credentials by accepting such positions. For the Agency to maximize and effectively use its veterinary resource, management will need to embrace and endorse this philosophy.

***Recommendations:***

1. Make food safety the #1 priority for the role of the veterinarian. Reassess the responsibilities of FSIS veterinarians to ensure their role in food safety takes precedence over all others.
2. Utilize more of the skills of veterinarians to oversee the implementation and interaction of systems controls, rather than just verify their application, to ensure better critique of the appropriateness and adequacy of these systems.

3. Define the in-plant veterinarian's role as the only government official who is responsible and technically accountable for assessing and making a scientific judgment, as a result of analysis of available data, whether the plant is operating under a sufficient and appropriate food safety control and monitoring system.
4. Define the duties of FSIS veterinarians as educators, facilitators, and/or managers of teams and partnerships working with researchers, industry, and consumer groups to encourage food safety practices from farm to table. FSIS veterinarians should help develop educational materials and be allowed official time and compensation for this function.
5. Develop the pathways for a science-based evaluation of equivalency and implementation of appropriate oversight methods.
6. Educate and utilize veterinarians as auditors to assess the reliability and effectiveness of farm-to-table food safety controls.
7. Conduct a needs assessment to determine the kinds of professional knowledge and skills the Agency needs now and in the foreseeable future to accomplish its public health mission.
8. Conduct an FSIS employee skills survey to identify the professional knowledge and skills Agency employees already possess and better utilize them in accomplishing the Agency's public health mission.
9. Establish and maintain a talent resource database that captures employee advanced education, board certification, language skills, and other specialized knowledge and skills to enhance job enrichment and advancement and allow the Agency to more efficiently tap these valuable resources.
10. Identify and communicate career tracks for the FSIS veterinary workforce. A Career Planning Guide for Veterinarians could accomplish this. The career tracks could be:
  - Public Health Policy and Assessment Track: The Agency could use veterinary analytical and problem solving skills for risk assessment, data management, epidemiology, research, and policy development and evaluation. This track could also encourage FSIS veterinarians to interact with others in academia, States, and other organizations.
  - Inspection Application Track: In addition to traditional roles in antemortem and postmortem inspection, FSIS veterinarians could monitor animal health and product safety from farm to table. They could monitor feed testing results, drug therapy and withdrawals; verify HACCP systems; and conduct enforcement and compliance activities.

- Administration/Management Track: Veterinarians and the Agency should seek opportunities to develop and mentor future leaders in administration and management.
  - International Track: FSIS veterinarians could contribute to international communications (using foreign language skills), policies, exports and imports involving foods of animal origin.
11. Use vacancy announcements and other information vehicles to provide guidance on how applicants may qualify for other job series and still remain competitive for higher-graded GS-701 positions. Provide information on job qualification requirements and how they are used in evaluating applicants.
  12. Recognize the international role for FSIS veterinarians as technical liaison with other countries and international organizations. Clearly define in FSIS international roles that should only be performed by veterinarians.
  13. Appoint an FSIS Chief Veterinary Public Health Officer to:
    - Coordinate domestic and international technical issues related to food animal and public health and oversee veterinary personnel credentials, education, training, and support.
    - Provide leadership for food safety initiatives to meet established domestic and international standards.
    - Maintain liaison with the Chief Veterinary Medical Officer of the USA (Currently resides in APHIS).
  14. Create a department-level Chief Veterinary Officer for the United States as advisor to the President via the Secretary of Agriculture to coordinate international animal health plus meat and poultry food safety control issues.
  15. In plants which slaughter cull animals, FSIS should:
    - Reassess staffing to ensure protection of the public health.
    - Upgrade veterinary positions to attract and keep the appropriate level of veterinary expertise.
    - Encourage the utilization of diagnostic information in partnership with FSIS epidemiologists, industry, State veterinarians and APHIS.
    - Utilize such facilities for education and training programs and refresher courses.

## II. EDUCATION, TRAINING, RECOGNITION, AND RECRUITMENT

### ***Issue Statement:***

FSIS must clarify, expand, and promote a wide range of educational opportunities for veterinary public health professionals. The Agency needs to change how it recruits, develops, and recognizes highly qualified veterinarians in order to become the “employer of choice.”

### ***Discussion:***

As FSIS employees assume a new role in a farm-to-table food safety and HACCP environment, the Agency must assess how to fully develop and utilize its veterinarians. This issue is multi-faceted. As noted in the previous section, the veterinarian has the necessary skills and education to serve FSIS in a number of capacities. Therefore, if the Agency is to effectively meet the public health challenges of the 21<sup>st</sup> century, it will need to explore how to continually develop and recognize its veterinary workforce. If this is done successfully, the recruitment and retention of highly qualified, motivated veterinarians will be assured. Outlined below is a discussion of the development, recognition, and recruitment efforts that will be needed for the FSIS veterinary workforce of the future.

### *Continuing Education and Training for the FSIS Veterinary Workforce*

The current Pathogen Reduction/HACCP environment requires greater professional judgment and expertise to make broad science-based decisions. The need for individuals educated in the traditional areas of pathology, microbiology, epidemiology, toxicology, public health sciences, and production medicine will increase. Other important areas include business, risk assessment, communication, and management, manufacturing engineering, food science, international studies, environmental sciences, and leadership and administrative skills. In the past, the Agency offered advanced education and training programs in science and technology, such as genetic engineering, but did not support continuing education and development in those fields. Therefore, to ensure that FSIS is prepared to meet the challenges of the Pathogen Reduction/HACCP environment, FSIS will need to proactively invest in education at several levels.

First, FSIS would greatly benefit from the implementation of an internal continuing education program to maintain basic expertise and refresh or upgrade the skills of the professional workforce. Areas of emphasis could include the science of auditing and statistics, risk assessment, problem solving, epidemiology, microbiology with emphasis on the ecology of pathogens, new and re-emerging infectious diseases, and pathology. The Agency could also increase the number of employees participating in established programs such as the Supervisory Educational Program, HACCP Expert Training, and other available continuing

education courses and seminars.

In conjunction with a continuing education program of selected courses, a well-developed and sustained educational effort is needed whereby FSIS veterinarians and other professionals are afforded opportunity to further their education and develop expertise that the Agency needs to protect the Nation's meat and poultry food supply. This educational opportunity would improve the expertise of the workforce by focusing on development within relevant disciplines of study. For example, a certain number of candidates from the professional workforce should be competitively selected for designated graduate or certification programs. Partnerships could be developed with different colleges and universities to allow the Agency to provide competitive candidates with traditional graduate degrees as well as custom-designed graduate programs created to meet mission needs.

There are a number of areas in which FSIS would benefit from providing either continuing education opportunities or focused graduate programs. Several obvious areas include but are not limited to: 1) audit, process engineering, and manufacturing principles; 2) epidemiology and population medicine; 3) Masters in Public Health; 4) food science; and 5) microbiology. As the Agency constructs these programs, it may also be helpful to look at what has been done in other agencies. For example, CDC, APHIS, and the Department of Defense (DOD) have enhanced their effectiveness by establishing professional development programs which include preventive medicine, public health, epidemiology, microbiology, food science, leadership, management, and administrative skills.

Coupled with these more formal efforts, there should be an increase in the use of "on-the-job" experiences such as international exchanges, sabbatical leaves, inter-agency liaison programs and fellowships, and industrial/corporate externships to broaden job perspectives and facilitate new ideas. For example, in addition to participating in the Senior Executive Candidate Development Program, the Agency should support, and veterinarians should seek, opportunities for fellowships and exchange programs that enhance leadership, management, and administrative skills. Mentors, both inside and outside of FSIS, would also be helpful to introduce veterinarians to new perspectives, providing a "big picture" focus and advising them on various career paths. A continuing education program that offers a variety of relevant educational and OJT opportunities and experiences could be effectively accomplished through contract relationships with the academic community or private educational enterprise and memoranda of understanding with other agencies, as well as through the Agency's Training Center.

Certainly, an internal education and training program of the nature described above must be structured and well-managed, if it is to be successful. FSIS will need to keep abreast of educational and technological developments; continually evaluate and upgrade educational opportunities; and increase the use of distance learning opportunities or Computer Based Training (CBT) systems. To do all of this effectively, the Agency should consider establishing a permanent educational committee comprised of Agency managers, managers from other food safety agencies, individuals from the academic community, and Agency professionals.

This educational committee could provide advice on the development of custom-designed graduate programs, act as a development and selection committee for competitively-awarded graduate opportunities, and provide Agency leadership with an organized forum for communication with university-based educators, e.g., colleges and schools of veterinary medicine. This communication will have the added benefit of assisting the Agency in influencing the curriculum in public health and food safety and stimulating recruiting opportunities for new graduates interested in careers in public service.

### *Employee Recognition*

In conjunction with ongoing professional development and training, employee recognition is also critical to motivating and retaining a highly-qualified professional workforce. Agency management needs to encourage supervisors to publicly recognize employee achievements and outstanding performance. In addition to broader use of existing recognition systems, such as awards of cash or time off, supervisors should be encouraged to use non-monetary awards such as plaques, letters, and newsletter articles.

More prestigious Agency award programs (i.e., “Veterinarian of the Year”) could also be designed to provide individual recognition for outstanding work. Specific criteria could be developed and publicized to the workforce. By clearly identifying what types of accomplishments warrant a high-level award of this nature, employees would better understand the Agency’s expectations for excellence and strive to achieve it. By fully recognizing its veterinarians, FSIS will not only see benefits in terms of a more motivated workforce, it will improve its ability to attract, recruit, and retain new employees in the future.

### *Recruitment of the Veterinary Workforce of the Future*

As the job market becomes more and more competitive, FSIS needs to be able to attract, recruit, and retain new employees in the future. As discussed above, the methods used by the Agency to develop and recognize its employees will be a critical factor if it is to become the “employer of choice.” However, the Agency will also need to promote food safety as a viable career alternative so that prospective applicants will consider FSIS first when looking for a job.

Presently, FSIS is the leading employer of veterinarians in the nation and actively recruits graduates from colleges of veterinary medicine. However, the current veterinary college curriculum focuses primarily on large and small animal clinical practice. To provide effective food safety oversight in the 21<sup>st</sup> century, FSIS leadership and veterinarians could participate as adjunct faculty to encourage career paths and curricula in public health. FSIS could also create joint, mutually-beneficial programs, such as programs leading to a special degree or certification in areas such as risk assessment.



To promote food safety as a viable career option for veterinary graduates, FSIS and veterinary students may participate in the Virginia-Maryland Regional College of Veterinary Medicine's Center for Government and Corporate Veterinary Medicine and other special academic programs focused on veterinary career opportunities other than clinical practice. FSIS should closely partner with the Center and other veterinary colleges to provide practical, rewarding, hands-on experience in food safety and public health settings. Linkages with the Center could be enhanced through cooperative agreements and memoranda of understanding for clerkships and graduate opportunities. Partnering with the Center's executive fellowships in leadership and policy could expand FSIS's network of future veterinary leaders.

In addition to promoting food safety careers, a variety of recruitment incentives should also be used to attract prospective applicants. Specifically, the Agency should regularly provide pay incentives to ensure FSIS can remain competitive in today's job market. Recruitment bonuses, higher pay for superior qualifications, and payment of travel and transportation expenses to the first post of duty should be a regular part of the recruitment package. Consideration should also be given to establishing a "debt forgiveness" program, whereby the Agency would pay a portion of the graduate's tuition in exchange for Federal service. With the high level of tuition costs, this would be a highly attractive incentive for luring the best-qualified veterinary graduates to FSIS. Although such a program is not currently available for government-wide use, it is being seriously considered by the Office of Management and Budget (OMB). If approved by OMB, regulations are expected to be in place in the next year or so, which will allow FSIS to take advantage of this recruitment incentive.

In summary, how the Agency develops and recognizes the skills and talents of the current FSIS veterinary workforce, and how the Agency prepares and recruits public health professionals in the future, will be key to enhancing the effectiveness of FSIS in the next century. By adding value to the Agency's employees and enhancing its recruitment efforts to become the "employer of choice," FSIS will be better able to serve the public and the industry it regulates.

### ***Recommendations:***

1. Develop a robust continuing education and training program in both traditional and non-traditional specialties to maximize the value of employees, including veterinarians.
2. Utilize distance learning, computer-based training opportunities in addition to more traditional classroom training approaches.
3. Reserve a budget for 10% of the workforce to be in employee development, training, education, or team building at any given time. Maintain an encumbered educational fund dedicated to enhancing traditional and non-traditional skills and knowledge activities to ensure availability of needed proficiencies within the Agency. These skills should include leadership and staff skills necessary for developing and implementing public health policy, risk analysis, and food safety initiatives, with both domestic and international focus.
4. Provide an auditing component as part of the education offered to FSIS veterinarians. An auditing course could be developed and offered to in-plant veterinarians, as well as the staffs of the Technical Service Center Staff, Office of Policy Program Development and Evaluation, and Office of Public Health and Science. The material should be developed based on true audit principles and should focus on practical application. Suggested methods to accomplish this include offering an ISO 9000 lead auditor course or the development of a course (or as a component of a course) through the contract with Texas A&M.
5. Establish advanced study programs (graduate education, Board certifications, etc.) for employees on a competitive basis.
6. Establish a competitive training option for two-year assignments with the Epidemic Intelligence Service at the Centers for Disease Control and Prevention (CDC) and other preventive medicine programs. Consider developing a "commissioned corps" within USDA or using Public Health Service Veterinarians.
7. Publicly recognize achievement and reward excellence in service. Consider establishing prestigious Agency awards programs which recognize highly exceptional accomplishments.
8. Provide more opportunities for informal OJT experiences (international exchanges, inter-agency liaison programs fellowships, etc.).
9. Encourage networking and mentoring to assimilate new employees and support new and existing FSIS veterinarians.
10. Establish a permanent educational committee comprised of Agency managers, managers from other food safety agencies, academia, and FSIS

professionals to manage continuing education programs in FSIS.

11. Improve recruitment efforts to undergraduate and professional levels, with incentives to attract highly motivated and qualified veterinarians to FSIS and encourage them to become broadly-trained public health scientists. Expand recruitment efforts to include potential applicants from the private sector and State and local governments to introduce new ideas and enrich Agency programs.
12. Create a Veterinary Recruitment Officer(s) Program. Establish the criteria and select Veterinary Recruiters to build a better presentation package. Promote and use veterinary internships for new veterinary graduates interested in a food safety career, and veterinary externships for veterinary students interested in a food safety career.
13. Establish a dedicated full-time position to work with universities to encourage curriculum development and to present food safety as a career alternative to students, faculty, and public health professionals. FSIS should:
  - Identify veterinarians who have skills to instruct food safety classes and promote careers in FSIS.
  - Develop a course on HACCP and food safety, at the Technical Service Center, to be offered in the colleges of veterinary medicine.
  - Develop an FSIS recruitment presentation.
  - Promote and implement advisory programs at veterinary colleges.
  - Promote continuing education and graduate study (with continuing service agreements) and place individuals in positions which use the training.
  - Encourage combined degrees, such as Doctor of Veterinary Medicine with a Masters of Public Health or Masters in Business Administration.
  - Encourage achieving qualifications for Board Certification.
  - Make food safety presentations to veterinary students.
  - Promote and use veterinary internships for new veterinary graduates interested in a food safety career.
14. Develop a continuing education program for veterinarians and other specialists to obtain and retain technical expertise that enhances the effectiveness of the food safety oversight system. Regular attendance and presentation at topical professional meetings should be encouraged and resourced.
15. Expand FSIS partnering with Colleges of Veterinary Medicine and Centers of Excellence (e.g., Center for Government and Corporate Veterinary Medicine) to develop FSIS adjunct faculty opportunities, veterinary student clerkships, externships, fellowships, graduate programs, etc., in public health, food safety, leadership, and administrative career path development.

### III. PARTNERSHIPS

#### ***Issue Statement:***

Partnering with diverse farm-to-table stakeholders is necessary to achieve the common goal of a safe, wholesome and affordable food supply. National, State and local government agencies need to interact to expand food safety activities and services from farm to table. Veterinarians can contribute important skills in these partnerships.

#### ***Discussion:***

The President's Food Safety Initiative of 1997 instructed key Federal food safety agencies to cooperate to improve the safety of the nation's food supply. Currently, at least 12 Federal agencies have significant food safety responsibilities, including USDA (FSIS; Cooperative State Research, Education and Extension Service; Agricultural Research Service; Economic Research Service; and the Office of Risk Assessment and Cost Benefit Analysis), Health and Human Services (Food and Drug Administration; National Institutes of Health; and the Centers for Disease Control & Prevention); Environmental Protection Agency; Commerce; and the Department of Defense. A 1997 report to the President outlined research and educational priorities and a need for further coordination. The President created the President's Council on Food Safety, co-chaired by the Secretary of Health and Human Services, the Secretary of Agriculture, and the Director of the White House Office of Science and Technology Policy. The Council is developing a food safety strategic plan with coordinated budget requests.

State and local agriculture and health agencies provide significant food safety services from farm to table. For years, government agencies have cooperated, with a delineation of responsibilities. Because partnering encourages the sharing of technical and budgetary resources, the development of common interests and goals and the opportunity to share information and work together, partnerships will be significantly expanded in the future. The broader functions will include a more seamless, coordinated food safety system beginning at animal production, extending through transport, holding facilities, slaughter and processing, distribution and wholesaling, to final food preparation and consumption. One of the most important outcomes of successful partnerships is improved educational outreach efforts to small business producers and processors and consumers. Veterinarians can play expanded roles in enhancing cooperative education among national, State and local governments, the food industry and the public.

Many examples of partnerships, both long-standing and recent, can be cited among all levels of government. Veterinarians participate in many of the teams and will increasingly be members and leaders in these partnerships. FSIS is championing partnerships at many levels. In 1997, it committed \$1 million and since has committed additional technical and financial resources to partnerships to develop food safety and HACCP programs for small and very small plants. FSIS veterinary

field officers and epidemiologists are well positioned to interact in traditional Federal/State relations and to be catalysts for new partnerships.

FSIS is also a key player in the Partnership for Food Safety Education involving partners in and beyond government. Ednet, a partnership among FSIS, FDA, and the Cooperative, State, Research, Education & Extension Service (CSREES) delivers food safety data and information via the Internet. Veterinarians are welcome partners in food safety education. FSIS is partnering with CDC, FDA, and eight states in the Federally-sponsored FoodNet, an active foodborne disease surveillance network which collects, analyzes and provides data on Salmonellosis and other human illnesses. These data are valuable in assessing the effectiveness of HACCP implementation; the first annual HACCP analysis shows a decline in the prevalence of *Salmonella* on meat and poultry and FoodNet identified a corresponding decline in human foodborne illnesses. More comprehensive sampling at slaughter and correlation with on-farm data collected in the APHIS National Animal Health Monitoring System (NAHMS) would provide more seamless data from farm to table. Veterinarians can be extremely valuable to these partnerships by developing effective protocols, collecting samples, assessing data, and reporting progress.

FSIS veterinarians are also very important in developing the Animal Production Food Safety Partnerships between FSIS and, currently, 18 State pilot projects. Veterinarians work together locally to address key food safety and animal health issues. Veterinarians may be major participants in the Outbreak and Recall Response Coordination Groups being organized to coordinate responses to foodborne outbreaks. For example, both Washington and Georgia hold quarterly interagency meetings to coordinate responses to food, water, and other public health emergencies. A formal animal health/public health partnership between the California Department of Health and the State Veterinarian recently demonstrated its effectiveness in tracing back and controlling an egg-associated disease outbreak.

In addition to the State pilot projects, FSIS partnerships with colleges of veterinary medicine may be very important in maintaining animal production food safety. FSIS has important partnerships with Texas A&M University in education and training, and with Tuskegee University in risk assessment. Locally, FSIS district offices are developing partnerships with the University of Arkansas and North Carolina State University to proactively solve food safety and HACCP implementation problems. Veterinarians and food scientists at Iowa State University and the University of Arkansas are participating in the FSIS Models Project. The future may hold more partnering with universities, especially land grant universities and schools of public health, in education and training.

Veterinarians at FSIS headquarters, veterinary field epidemiologists at District Offices, and veterinarians at the Technical Service Center and the National Training Center play active roles with information leaders and multipliers in government and academia, by sharing epidemiological data from live-animal, in-plant and post-processing pathogen and residue recognition and testing. This role can expand

significantly in the future. FSIS, ARS, ERS, FDA, and APHIS have long partnered with academia in research and development, training, and recruiting veterinarians and other scientists. Land grant universities and extension services actively work with FSIS to provide HACCP training and development for small and very small plants. In the future, partnering may include joint studies with FSIS in-plant veterinarians. Effective oversight will contribute to a mutually beneficial and productive learning experience.

Commodity groups and the food industry are key partners in producing safe food. FSIS veterinarians will play important roles in auditing and verifying animal health and treatment records for certified and branded meat and poultry products produced under partnerships involving producers (such as the National Pork Producers' Council), practicing veterinarians, and processors. These partnerships will include residue avoidance in production (NPPC Pork Quality Assurance Program, Level 3), joint partnerships with USDA (NPPC Trichina Safe Certification), and other HACCP-compatible farm-to-table food safety assurance systems.

***Recommendations:***

1. Develop Cooperative Agreements and Memoranda of Understanding with other Federal food safety agencies, including specific activities and resource provisions for advancing public health goals. Veterinarians may be important members and leaders in these partnerships.
2. Identify and staff official veterinary liaison positions in FSIS partnerships with other Federal agencies, State food safety programs for animal production, and State food inspection programs. Encourage participation of FSIS field veterinarians and District Office veterinary epidemiologists in Federal/State partnerships with identified liaison positions and in animal production level partnerships. Job descriptions for FSIS Office of Public Health and Science field epidemiologists should include these duties as a critical performance element.
3. Expand participation of FSIS field veterinarians in pathology, microbiology and residue specimen collection, analysis and reporting (e.g., in partnership with the Center for Veterinary Medicine, FDA, which assesses drug safety and withdrawal times).
4. Detail or provide administrative leave to FSIS veterinarians to partner with academic institutions in research and development projects, workshops and educational programs.
5. Partner with academic institutions in national and district conferences to scientifically assess proposals and solve problems. FSIS veterinarians may partner with veterinarians in academia at all levels of such development.

6. Encourage FSIS Veterinarians to work with commodity groups, State and local governments, industry, and the public to provide education on HACCP and HACCP-compatible programs, especially for animal producers, and for food safety certification programs.
7. Utilize FSIS veterinarians as professionally-skilled members of international partnerships involving import and export of foods of animal origin.

#### **IV. INFORMATION MANAGEMENT SYSTEMS AND ANIMAL IDENTIFICATION**

An important charge to the Task Force was to identify potential uses of technology. Information management systems and positive animal identification are fundamental tools for a food safety system today and in the future.

##### ***Issue Statement:***

Current gaps in food safety information systems limit public and private efforts to fulfill their food safety missions. Issues of scarce resources, confidentiality, jurisdiction, and expensive technologies have maintained these data gaps. Public and private interests must coordinate efforts to collect necessary data in a similar manner in order to integrate information for development of sound, science-based food safety policy and identification of research and educational needs.

##### ***Discussion:***

The Task Force members believe that they have a responsibility to highlight the absolute necessity for functional information management systems that serve all food safety and public health professionals, including veterinarians. A national, coordinated information system containing animal health and food safety data would support development of science-based policy and assist both public and private interests in safe food production. Producers and processors would have access to information empowering them to produce safer foods. Government agencies would be able to monitor epidemiological trends in food safety and animal health, and their impact on public health. Academia would have a phenomenal information source to direct food safety research at the leading edge of discovery. Major challenges that must be addressed revolve around confidentiality protections, data ownership, international trade issues, and misuse and misinterpretation of information.

Coordinated information systems are essential for risk assessment, risk management and risk communication. Effective and adequate monitoring and surveillance to identify risks are necessary to improve the allocation of resources

and to develop the knowledge needed to support science-based policy generation and management of hazards that pose the greatest risk. As risk analysis becomes accepted as critical to public health and food safety, demands will increase for accurate, timely information to control infectious diseases, including foodborne diseases, and to enhance the safety and value of animal-source foods. Such an information system could help correlate animal health and food safety data with human health outcomes. For example, a decline in human salmonellosis identified by FoodNet might be explained in part by the parallel decline in *Salmonella* recovered from foods of animal origin in the HACCP program.

Currently, segments of such an information system are widely dispersed and often not readily-accessible by producers, processors, consumers, and government. Risk assessment studies are identifying substantive information gaps in the current farm-to-table chain. Specifically, information is lacking on the zoonotic pathogens associated with food animals and on the prevalence of chemical and physical hazards. There is little coordination between key players in the food system and, as a result, there is minimal feedback for evaluation and continuous improvement. This lack of information impedes program development efforts and the measurement of progress. An overarching goal of such integrated systems is to facilitate the translation of surveillance findings into improved long-term prevention measures. Collaboration with industry to document and disseminate successful intervention strategies would be an important product.

One of the most apparent gaps is the lack of a slaughter-based data system combining diagnostic pathology and microbiology, antimicrobial resistance monitoring, residue analysis, serology and gross pathology which would provide an early warning surveillance system to detect emerging animal and human pathogens, exotic/foreign animal diseases, and bioterrorism threats. Slaughter facilities are a concentrating point for monitoring food animal diseases and residues, and for detecting emerging pathogens. FSIS veterinarians should be key partners in collecting and utilizing essential data generated in the abattoir. This information system would guide veterinary epidemiologists in studies to further investigate a particular health hazard.

Potential partners with FSIS in building an information system include producers, industry, APHIS, ARS, CSREES, FDA, CDC, States, diagnostic laboratories, academia, and others involved in animal health and food safety research. A model multi-state network could be piloted to speed and simplify electronic reporting, analysis and dissemination of data derived from the in-plant evaluations for physical defects, chemical residues, and other zoonotic concerns. The design and sampling criteria for this system will require constant input and evaluation by the FSIS in-plant veterinarian in collaboration with food safety professionals involved in production and product processing. Rapid availability of information is a cornerstone in the design of this system.

With the current limited resources, studies correlated with the APHIS National Animal Health Monitoring System (NAHMS) would enhance understanding and control of pathogens and other hazards. For example, studies in sentinel plants for



each slaughter class could be rotated on a three- to five-year basis in parallel with NAHMS studies to provide meaningful baseline and trend information.

A corresponding need is a reliable system to link slaughter surveillance data with on-farm quality assurance programs to enable evaluation of those programs. Surveillance data collected at slaughter with appropriate guarantees of confidentiality, and fed back to the quality assurance program would facilitate improvements. Such a linked system supports risk-based inspection initiatives and optimizes the use of data already collected. The success of the linked system would depend on voluntary cooperation of producer and industry groups. It would generate more rapid and efficient response to animal and public health issues. FSIS should participate in the already successful Trichina Certification Program, a model partnership network of private practitioners, industry, producers, and APHIS.

Because of the diverse number of potential users, the successful creation of the described information management system will have obstacles. Several technical and policy issues must be addressed. They include technology standardization, information/computer security, responsibility for and control of identification devices, and data capture responsibilities. Ultimately the necessary funding to support information gathering, storage and coordination of analytic processes must be obtained. With the network technology available and in development, the potential for coordination of large volumes of data from the various public and private groups increases in technical feasibility and becomes more economically viable.

An excellent model for this information management system is the National Weather Service housed within the National Oceanic and Atmospheric Administration (NOAA) that collaborates with a variety of stakeholders for both input of and use of meteorological data. A comparable centralized site for the food safety information system might be the National Agricultural Library. Data from the system could be shared with other public health agencies and private groups to prioritize food safety activities and for prevention/education efforts. At the National Agricultural Library, the system would be accessible to the general public and the research community on an appropriate basis.

Animal identification systems are essential to the development of effective information management systems. Animal identification is basic to a comprehensive surveillance system, and enables the verification of the effectiveness of domestic and international HACCP systems, facilitating global trade. It would also promote coordinated involvement from diverse government agencies and the private sector. Development of animal identification systems must respect the needs of the animal production community. FSIS should support APHIS-industry efforts already underway. FSIS in-plant veterinarians are in a unique position to validate the effectiveness of animal identification. Their involvement is an integral part of making any animal identification system function properly.

In short, developing and implementing an information management system with animal identification is a principal component of any successful food safety system

of the future. It is a key partnership, which would empower both public and private sectors to improve food safety. A successful system would support the following efforts:

- ✓ Voluntary producer quality assurance programs
- ✓ Verification of on-farm production practices
- ✓ Food hazard identification and prevention programs
- ✓ Risk assessment to prioritize industry and governmental activities
- ✓ Animal identification systems linked to information sharing and certification/branded market programs
- ✓ Better utilization of FSIS veterinarians for public health/food safety
- ✓ Expansion of government and industry ability at all levels to respond effectively to food safety concerns, including zoonotic outbreaks and bioterrorism
- ✓ Verification of international trade requirements

***Recommendations:***

1. Establish a working group from key commodity groups, agencies, industry, and academia to determine gaps in existing food safety and animal health surveillance efforts and to understand the needs and resources available from the farm-to-table continuum. This working group should address issues such as confidentiality, data ownership, and use of information.
2. Integrate existing, and yet-to-be-developed, segments of food safety and animal health surveillance systems to develop an information management strategy.
3. Enable an integrated surveillance system to provide data for early detection of emerging pathogens and bio-terrorism threats, evaluate quality assurance programs, and monitor food safety program progress and effectiveness.
4. Utilize the FSIS veterinary medical workforce as information managers and to facilitate distribution of this information for appropriate action.
5. Establish a working group from key commodity groups, agencies, industry, and academia to evaluate and update the information needs on a yearly basis. The working group is a key partnership activity. The working group is challenged to maintain the maximum utility of the system while protecting confidentiality issues of participants.
6. Support APHIS in its government-industry partnerships in developing and implementing an animal identification system. Positive identification (suitable to species) at point of sale and slaughter is desirable.

7. A Presidential-level body should address issues of inter-agency coordination, funding, policy, and budget issues at the highest level of government. The leadership of the President's Council on Food Safety should be tasked to develop a proposal, with input from academia and industry, to facilitate cooperation, coordination, planning, and funding of appropriate information management systems.

## V. VETERINARY CONTRIBUTIONS TO INTERNATIONAL CREDIBILITY OF FSIS

### ***Issue Statement:***

FSIS needs to develop and maintain stronger international relationships, which **complement** the increasing global movement of **safe** food. A cadre of scientific and veterinary expertise needs to more frequently interact with the relevant technical experts and regulatory managers working on related issues overseas. In turn, these people need to be more actively and directly involved in both market access negotiations and ensuring that appropriate systems are put in place to monitor/deliver whatever is negotiated.

### ***Discussion:***

International trade agreements and the increasing ease with which products, people, and information can travel have required food safety agencies around the world to take an increasingly global perspective. Emerging pathogens, drug resistant bacteria, hormone/antimicrobial utilization, pesticide/antimicrobial residues, as well as the potential impact of new technologies for producing, processing, and marketing food are global issues. A high level of technical cooperation and communication between governments is vital if these issues are to be effectively managed. This is especially so to ensure the occasional crises arising out of such issues are managed in such a way so as to minimize the potential for adverse public or animal health impact while maintaining the highest level of commercial predictability for U.S. import and export businesses.

As a result of the expanding international marketplace and its complicated myriad of issues, the international demands upon FSIS will increase. The Agency needs a sustained awareness of global human health, animal health, and food safety systems. It needs strong relationships with similar agencies around the world. All agencies which protect societies from food-borne illness and human and animal diseases should focus on international risk management. International trading partners rely on veterinarians' expertise, credibility, and integrity when working with FSIS on food safety issues. Developing relationships and gathering and sharing phytosanitary and sanitary information are the best defense against excessive standards or misuse of standards as trade barriers.

Most countries only permit the import of meat or poultry products when certified by veterinarians employed by the government of the exporting country. These official certificates state not only that the product is “safe,” but also stipulate the product meets all the specific additional requirements of the importing country. For the long-term stability and sustainability of our export markets it is essential that FSIS certification be regarded as having a high level of credibility and integrity. When veterinarians sign such certificates they do so not only on behalf of the exporting government but also put their own professional ethics and integrity on the line. This duality of accountability is central to the reason most governments insist on veterinary certification. It is thus essential that all certifying veterinarians have full faith that the inspection system they are overseeing is both capable of delivering, and has for each certified batch in fact delivered, exactly what they are attesting to. Accordingly, involving veterinarians with certification experience, both in the negotiations as to what the U.S. can certify to importing governments as well as in the formulation of the inspection and verification systems necessary to deliver such assurances, is important to ensure both certifier and foreign government confidence that U.S. meat and poultry products meet the appropriate standards.

The increasing diversity of markets, product types, process systems, and the way products are being sold will demand a more dynamic and flexible regulatory approach for imports and exports. Countries and companies are already experimenting with electronic certification and electronic commerce. The increasingly complex types of product being produced, the way it is packaged, and the need for timely product clearance will challenge all countries to look at new ways of gaining assurances rather than having to physically reinspect and stamp each and every consignment at the port of entry. The ability for more information to be rapidly stored/exchanged electronically and for products to be more accurately traced both forward and backwards will facilitate more interactive communication between the inspection agencies of trading countries and should allow more accurate risk profiling. FSIS will need to constantly adapt its systems to deal with this new age.

There is an emphasis worldwide now on gaining assurance from assessing the credibility and performance of the controlling authority of exporting countries rather than conducting so many laborious inspections of product at the port of entry. In fact, much of the high value product such as chilled modified atmosphere vacuum packed product relies upon efficient clearance at the port of entry and cannot withstand the integrity of the packaging being compromised. Good calibration of the inspection standards and performance between countries should reduce the need for reinspection of product at ports of entry other than as an ongoing verification of the maintenance of that calibration. Much of the resource expended doing port of entry reinspections in their current form could be better targeted and the results more actively and directly communicated back to the controlling authority of the exporting country. There is a future role for FSIS veterinarians to work more closely with their colleagues in both importing and exporting countries with an aim to reviewing current reinspection protocols applied by the U.S., or to U.S. product overseas, to look at how higher levels of assurance can be gained with less impedance to the free flow of products directly into commerce.

As international markets expand, all countries need to accept the concept of equivalency, not just of individual measures but also of whole systems of control. Efforts to promote equivalency are essential to facilitate, promote, and maintain cost-effective risk management and honest trade. The evaluation of the effects of different risk profiles and different control measures in different countries ideally requires an extensive and multi-disciplined biological knowledge if comparisons are to be made on the basis of science. While various experts can advise on components, appropriately skilled veterinarians are perhaps best placed to draw all the pieces of information together and advise on the strengths and weaknesses of the system as a whole.

Harmonization of principles with trading partners and movement towards outcome-focused standards, rather than prescriptive process standards, needs to be constantly worked at. Efforts to modernize meat inspection are not just restricted to the U.S. For example, the European Union is about to embark on a comprehensive review of its system. There is an urgent need to work more closely with the regulators of other countries, to learn from each others' experiences and to ensure as much as possible that there is a commonality of underlying principles being applied, or at least an acceptance of each others' variance, to ensure we can continue to trade with each other as changes are being made. FSIS veterinarians are well suited to work closely with their colleagues in other countries to better achieve these goals.

More and more, certain countries and companies are requiring production system assurances. These can vary from "produced without the use of hormonal growth promoters" to the ability to trace back all exported meat to the farm of origin, or in some cases, the actual individual animals the product was derived from. Negotiations with respect to the need for such systems, as well as the essential elements of any systems negotiated, arguably can only be enhanced by including representatives of the one profession intimately involved in all levels of the production, processing, and certification system.

Irrespective of any mandatory market access requirements, increasingly companies want to voluntarily exploit production-related label claims such as "organically produced" or "produced without the use of antimicrobial growth promoters." Accordingly, FSIS is going to have to ensure that sufficient standards and verification systems have been negotiated with markets and are in place to ensure the truthfulness of any such statements/claims. U.S. businesses will want to continue to capitalize on any and all opportunities available to them and will need an inspection and certification system responsive to these new challenges. FSIS should make the necessary management and cultural shifts to be ready for such global marketplace demands. It needs to be proactive so that it can market the systems most appropriate for the U.S. or else U.S. businesses will find themselves having to constantly replicate multiple importing country systems. Whether it be explaining U.S. production systems, the negotiation of equivalence, or the development of the necessary standards and verification systems, these roles can

only be enhanced by including representatives of the one profession intimately involved in all levels of the production, processing and certification system.

The member countries of the *Codex Alimentarius* Commission (C.A.C.) and the Office of International Epizootics (O.I.E.) are attempting to facilitate trade by getting multilateral agreement on standards, which achieve an appropriate level of protection. While each country is still free to set its own level of protection where it deems it necessary, full and active participation in these organizations will best ensure such standards closely reflect U.S. attitudes and facilitate U.S. import and export businesses. FSIS should, wherever possible, consider setting up permanent positions as liaisons with the international organizations seeking to harmonize and standardize food safety regulation. Select veterinarians should be encouraged to participate in international food safety and animal health negotiations at all levels. It would also be an advantage to have a selection of younger, less senior staff exposed to international meetings and negotiations in an effort to ensure seamless succession planning. Gifted communicators with established scientific credentials can only add credence to U.S. interests in negotiations.

To more effectively participate in these international activities, FSIS needs to establish a group of scientists and veterinarians who actively seek and maintain an awareness of foreign production and process systems and the epidemiology of foodborne illness globally. Currently, a variety of U.S. agencies, or groups within the FSIS, gather global information on foreign food production practices and foodborne disease. This information should be better integrated and available to identify animal and public issues and trends around the world so that appropriate risk management decisions can be made and FSIS inspection resources more effectively prioritized according to risk. FSIS needs to collaborate more effectively with all components and levels of the national and international animal and public health infrastructure. Through the establishment of an organizational component with an international focus, the Agency will be able to fully develop a more comprehensive international perspective as well as effectively promote an understanding of what other countries are doing regarding food safety. The desire and ability to analyze and gain knowledge from other trading partners is wise. In addition, international interaction will promote acceptance of U.S. methods that promote safe food and assist the mission of freer trade of safe food in a global marketplace.

***Recommendations:***

1. Develop and fund an FSIS technical unit to describe and justify the U.S. system of controls, stay abreast of international initiatives and/or innovative ideas, gather international food safety data, and work cooperatively with the technical agencies of foreign countries.
2. Provide a continual veterinary medical presence in appropriate locations to interact with international organizations on public and animal health issues.

3. Consistently include veterinarians in international meetings and negotiations on food products of animal origin.
4. Continue to improve, validate, and audit a reliable and credible export certification process, which better meets the expectations of foreign markets.
5. Be proactive with respect to working with the industries and other agencies to ensure the U.S. has robust production quality assurance programs, which can be used to verify mandatory or voluntary production-related label claims.
6. Update import reinspection procedures to make them more risk-based and system-audit-focused and to ensure they keep up with modern technologies including electronic information capture and transfer.
7. Encourage more veterinary participation in international food safety and animal health meetings and negotiations at all levels. Examples include *Codex Alimentarius*, Office of International Epizootics, World Meat Congress, etc.

## TASK FORCE MEMBERS – BIOGRAPHIES

Dale D. Boyle, DVM, MPH -- Executive Vice President National Association of Federal Veterinarians, Diplomate - American College of Veterinary Preventive Medicine, Colonel (ret) U.S. Army Veterinary Corps (25 years), U.S. Army Command & General Staff College Graduate, ISO 9000 Lead Assessor-Auditor. Experience includes leadership, food safety, quality assurance, HACCP, epidemiology, military intelligence, procurement, R&D, animal welfare, clinical veterinary medicine and on the farm agriculture. Editor/author - *Federal Veterinarian*.

Ronald F. Hicks, JD -- Deputy Administrator, Office of Management, FSIS. He has held positions in FSIS as Assistant Deputy Administrator for human resources, Personnel Director, and Labor Management Relations Director. At Bureau of the Public Debt, U.S. Department of the Treasury, he served as Director of Personnel Management, chief of the Labor and Employee Relations Branch, and as a labor and employee relations specialist. He was a national field representative of the National Treasury Employees Union. He holds a B.A. degree in political science and a JD degree.

George W. Beran, DVM, PhD, LHD -- Distinguished Professor, College of Veterinary Medicine, Iowa State University. Diplomate, American College of Veterinary Preventive Medicine. Diplomate, American College of Epidemiology. Director of the World Health Organization Collaborating Center in Risk Assessment and Hazard Intervention in Foods of Animal Origin. His teaching areas have been in World Food Issues, Food Borne Disease Epidemiology, Food Safety Assurance for Foods of Animal Origin, Protection of Human Health from Animal Associated Diseases and Harmful Residues, and Animal Disease Prevention.

Chris L. Bratcher, DVM -- President of National Association of Federal Veterinarians, Circuit Supervisor in FSIS. Experience includes Relief Veterinarian, Inspector In Charge, Veterinary Medical Officer Intern Program Trainer and multiple task forces, work groups and implementation teams in the Springdale, Arkansas, Area Office, Southwest Regional Office, TAMU training center, and Washington Headquarters. Previously, was in private practice and was VP and National Sales manager for an electronic manufacturing company.

Dana L. Broussard, DVM -- Supervisory Veterinary Medical Officer, Inspector-In-Charge, Food Safety Inspection Service. Served as President of the New England Chapter of the National Association of Federal Veterinarians (6 years) and Veterinary Medical Officer Agency Recruiter (8 years). FSIS experience includes field supervision and leadership, red meat slaughter/processing, liaison to outside agencies and groups, collateral services, public speaking, facilitation of new initiatives, employee training and pilot program design.

Bonnie Buntain, DVM. MS -- Acting Assistant Deputy Administrator, Office of Public Health and Science, FSIS. For 10 years, sole proprietor of a veterinary practice;



1991 - Clinical Reviewer, FDA-CVM; 1991-93 – National Program Leader, Extension Service, USDA; For 2 years, Director, Animal Care Staff and Team Leader, Preharvest Food Safety, APHIS; For 5 years, Director, Animal Production Food Safety Staff, FSIS; Diplomate Emeritus, American Board of Veterinary Practitioners.

Jere L. Dick, BS, DVM -- Assistant Regional Director, Eastern Region, Veterinary Services, APHIS. Experience includes: Area Veterinarian in Charge – New Mexico; Area Epidemiology Officer – Tennessee; Area Epidemiologist – Alabama; Field Veterinary Medical Officer – Montana; Private Practitioner – Washington State. Chairperson for Veterinary Services “Futures 2000 Initiative.”

Ruth A. Etzel, M.D., Ph.D. -- Director of the Division of Epidemiology and Risk Assessment in the Office of Public Health and Science at the Food Safety and Inspection Service. For 12 years worked as a medical epidemiologist at the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia. Board-certified to practice Pediatrics and Preventive Medicine. Vice Chair of the American Board of Preventive Medicine. Currently a Captain in the Commissioned Corps of the U.S. Public Health Service.

Douglas L. Fulnechek, DVM -- Supervisory Veterinary Medical Officer (11 yr), Inspector-in-Charge HACCP young chicken slaughter & processing establishment, Vet Med Officer Intern Program Trainer, USDA. FSIS experience includes leadership, multiple species multiple slaughter & inspection methods, food manufacturing, & pilot project field evaluations. Other experience includes directing national animal health information & education program, animal pathogen research, food animal veterinary practice, agricultural integrated resource management, and clinical instruction of senior veterinary students.

W. David Goolsby, DVM, MS, MPH -- Diplomate in American College of Veterinary Preventive Medicine; District Health Director, South Carolina Department of Health and Environmental Control. Completed twenty years in the Uniformed Services (16 years in the U.S. Army Veterinary Corps) with food safety and other public health responsibilities supporting the Department of Defense. Served on the Codex Committee on Food Hygiene of the FAO/WHO Codex Alimentarius, and on the National Advisory Committee on Microbiological Criteria for Foods. Experienced in leadership, partnership development, management, and administration of programs and processes affecting diverse aspects of public health.

Karen W. Henderson, DVM, MPH -- Assistant Deputy Administrator, District Inspection Operations, Food Safety and Inspection Service, USDA. Graduate of Tuskegee University (BS, DVM) and George Washington University (MPH). Variety of experience in regulating a food safety program within FSIS, including In-plant Inspector-in-Charge, Staff Officer for export coordination, District Manager for Import Inspection, National Poultry Correlator, Director of Internal Assessments and Investigations, Director of Evaluation and Enforcement in District Enforcement Operations, District Manager for Field Operations, Assistant Deputy Administrator for District Inspection Operations. Also served as Commissioned Officer, U.S.

Public Health Service, DHHS and have experience as veterinary clinical practitioner.

William T. Jolly, BVSc, MVSc, MACVSc -- Counsellor (Veterinary Services) New Zealand Embassy, Washington DC. Seconded into the diplomatic service for 4 years from the Ministry of Agriculture and Forestry (MAF).

Previously the MAF Market Access Coordinator for animal products to the Americas, and National Manager of the New Zealand Chemical Residue Control and Surveillance programs. Other experience includes 8 years in private practice and/or academia in both New Zealand and the United Kingdom

Laurie F. Lindsay -- Personnel Staffing Specialist, Employment Policy and Services Branch, FSIS Human Resources Division. Prior work experience includes 20 years of service with FSIS and the US Secret Service as a senior specialist in the field of personnel staffing, position classification, performance management and as Supervisor of the Staffing Unit, FSIS Washington Servicing Personnel Office.

Curt J. Mann, D.V.M. -- Executive Director of the Association of American Veterinary Medical Colleges, 1992-97 Professional Staff Member U.S. House of Representatives Committee on Agriculture, 1991-92 AVMA Congressional Fellow

Barbara J. Masters, DVM -- Director, Slaughter Operations Staff, Technical Service Center, Food Safety and Inspection Service. Currently serves as member of FSIS Technical Advisory Group; liaison to International HACCP Alliance. Experience includes leadership, food safety, HACCP (including coordination of FSIS HACCP Hotline), inspection, technical writing, technical training, animal welfare, and food animal clinical veterinary medicine.

James D. McKean, DVM, JD -- Extension Swine Veterinarian (25 years) and Interim Director Iowa Pork Industry Center, Member of USDA-APHIS-VS Swine Futures Team and USDA-FSIS Taskforce on the Future of FSIS Veterinarians. Past president of the American Association of Swine Practitioners, American Veterinary Medical Law Association and American Association of Extension Veterinarians. Experience includes residue detection, on-farm food safety activities, HACCP, risk management, quality assurance, meat irradiation, disease control and eradication strategies development and implementation, and development of continuing education information for producers and veterinarians.

Peter Miller -- Graduated (First Class Honours) as a veterinarian in 1973 from the University of Queensland; Received a PhD from University of Bristol, England in 1981. Member of the Australian College of Veterinary Scientists (Pharmacology Chapter) since 1985. Master of Public Administration from University of Canberra, 1997. Worked in practice, industry, and academia before joining AQIS in 1990. Was Counsellor (Veterinary Services) at the Australian Embassy, Washington, D.C., 1996-1999. Currently Acting National Operations Manager, Meat Inspection Division, Australian Quarantine and Inspection Service (AQIS), Canberra.

Dennis C. O'Malley -- Chief, Classification and Compensation Branch, FSIS Human Resources Division. Prior experience includes service as Acting Chief of Classification and Pay for the U. S. Fish and Wildlife Service, Department of the Interior, and as a classification and qualification standards writer with the U. S. Office of Personnel Management.

Dr. Perfecto R. Santiago, D.V.M. -- District Manager, Beltsville District, FSIS, FO; Graduate, Federal Executive Institute; 30 years of field supervisory experience as Inspector in-Charge, Circuit Supervisor, Asst. Area Supervisor and Area Supervisor.

William C. Smith -- Currently the Assistant Deputy Administrator for Field Operations. Mr. Smith has held various positions with the Food Safety and Inspection Service including Executive Director, Field Operations, Acting Regional Director- Northeast Region, and Director of the Processed Products Inspection Division. Mr. Smith has played a key role in the development and/or implementation of the Inspection System Work Plan, Performance Based Inspection System, Pre-operational Slaughter Sanitation Procedures, Zero Tolerance Standards, Standard Sanitation Operating Procedures. He has most recently been involved with the implementation of Pathogen Reduction and Hazard Analysis and Critical Control Point requirements in large Federally inspected plants. He is a graduate of Kansas State University and has been with FSIS for 21 years.

Phyllis H. Sparling, DVM, MS -- FSIS Liaison to the Centers for Disease Control and Prevention, Diplomate of the American College of Veterinary Preventive Medicine and the Specialty Epidemiology, FSIS Project Manager for the Foodborne Diseases Active Surveillance Network (FoodNet), co-chair of workgroup National Food Safety Strategic Plan, and team member Evaluation of the Pathogen Reduction/HACCP Rule. Formerly Director of the FSIS Eastern Laboratory, Athens, Georgia, Residue Staff Officer of the Southeast Region, Supervisory Veterinary Medical Officer, and Epidemiologist, APHIS, Veterinary Services.

Paul E. Thompson, DVM -- Director, FSIS Technical Service Center; Omaha, Nebraska---Served extensively in every supervisory and managerial position a veterinarian within the field structure of FSIS may occupy. Currently directs the activities of a staff of 110 professional and technical personnel in providing food safety information and education to regulatory officials, and to the meat, poultry, and egg products industries worldwide.

Linda Tollefson, DVM, MPH -- Director, Office of Surveillance and Compliance, Center for Veterinary Medicine, U.S. Food and Drug Administration, Captain US Public Health Service, Director of the National Antimicrobial Resistance Monitoring System (NARMS). In current position, responsible for FDA's national surveillance programs, enforcement strategies, and compliance policies for veterinary medical drugs and devices, and all activities, both pre-market and post-market, for FDA's

animal feed safety program.