The Animal Health Safeguarding Review
RESULTS AND RECOMMENDATIONS

October 2001

Animal Health
Safeguarding
Review

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The Review and the NASDA Research Foundation

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The NASDA Research Foundation

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Mission Statement:
Animal and Plant Health Inspection Service's Veterinary Services

Veterinary Services (VS) protects and improves the health, quality, and marketability of our nation's animals, animal products, and veterinary biologics by

- Preventing, controlling, and eliminating animal diseases; and
- Monitoring and promoting animal health and productivity.

The Animal Health Safeguarding Review

OVERVIEW

U.S. biosecurity is a national, military, and food security issue, and concern is rightly growing over the country's thin line of defense. At the core of concern is the fact that animal diseases affect commercial animals, pets and companion animals, and wild animal populations—some of these diseases can infect and kill humans.

Whether in large populations or small, high-value populations, animal disease outbreaks can cause significant and potentially devastating losses for producers; put considerable financial strain on response systems; and devastate regional and national economies. Therefore, the infrastructure of state, federal, and industrial animal health services must keep pace with the challenges of biosecurity.

Biosecurity itself is more than a buzzword; it is the vital work of strategy, efforts, and planning to protect human, animal, and environmental health against biological threats. The primary goal of biosecurity is to protect against the risk posed by disease and organisms; the primary tools of biosecurity are exclusion, eradication, and control, supported by expert system management, practical protocols, and the rapid and efficient securing and sharing of vital information. Biosecurity is therefore the sum of risk management practices in defense against biological threats.

The Animal and Plant Health Inspection Service's Veterinary Service (APHIS-VS) has so far been successful in carrying out its mission, but APHIS-VS could become the victim of its own success. With so much new trade and global economic interaction, so many effective new technologies helping to expand the industry and enhance eradication—and detection avoidance—with so many new opportunities overall for the industry and corollary operations, APHIS-VS is stretched thin. Resources are short; facilities are inadequate, understaffed, and overburdened; training is undervalued and under-required; surveillance techniques are failing to keep up with new and more subtle avoidance; communication is inadequate; and there is not enough employment of new technologies that could make APHIS-VS more efficient and effective.

The four committees whose work makes up this report find that four major needs must be met in order to address the rising and vital challenges of animal health issues in the U.S.:

1. Infrastructure inadequacies, especially in terms of staffing and facilities, are now so deep that the system cannot appropriately respond to a severe animal health crisis.

2. Improved communication—including establishment of the Emergency Operations Center—is vital for the acquisition and sharing of critical animal health information; and special attention must be focused on the use of advanced technologies.

3. America can no longer responsibly refrain from establishing a coordinated and vigorous National Surveillance System (NSS) and National Response Plan to monitor and respond to animal health issues.

4. The U.S. has a pressing and urgent need for improved and expanded applied research, and for diagnostic laboratories, both focused on animal health issues.

In addition, the four committees categorically assert that increased and complete funding is vital to meet the animal health challenge.

While the value of U.S. animal industries is high, the investment in protecting that industry is appallingly low. The livestock industry alone is worth about $100 billion, yet the entire Animal Health Monitoring and Surveillance (AHMS) budget for FY2001 was less than $70 million—our investment in protecting a critical range of industries is less than seven one-hundredths of one percent of only a single component. Both long- and short-term investment in state and federal animal health infrastructure is going down, while demand for services is going up. Simply put, resources do not meet the growing risk.

USDA must take the lead in developing a world-class system of exclusion, detection, surveillance, diagnosis, safeguarding, and response. Ironically, programmatic success in the 20th century has diminished both awareness of and support for the ongoing eradication efforts for many animal diseases. In particular, the U.S. now faces:

1. Declining awareness of need for adequate animal health safeguarding funds;
2. Growing need for redefinition of APHIS-VS mission and goals; and
3. Pressure to devise different systems for attaining the new goals.

USDA must build a system that both strengthens biosecurity and anticipates the new challenges such success will bring. This system should be grounded in core principles, and flexible enough to respond to changes in animal populations, commerce, and trade. APHIS will be the central component of this system, with support and assistance from both domestic and international partners. Moreover, greater coordination among agencies is vital. Complementary missions, tasks, responsibilities, resources and information should be exploited for maximum efficacy and efficiency.

This document is therefore a review of current and potential programs as the foundation for a system for safeguarding animal health in the U.S.

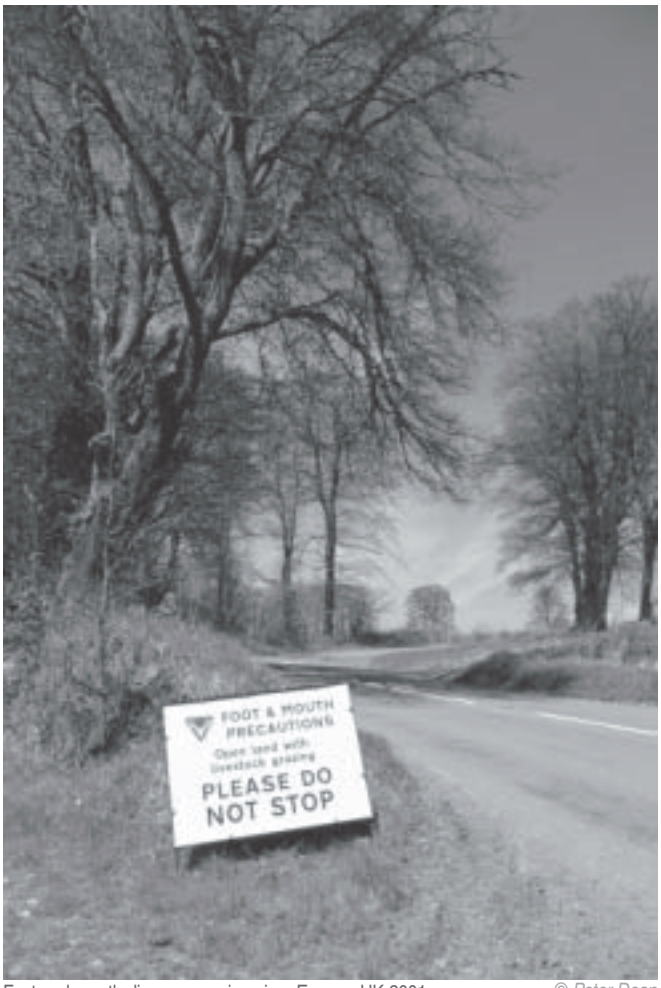
CAUSES AND EFFECTS OF ANIMAL HEALTH ISSUES: HIGHLIGHTS

- As mobility increases, animal and human health risk factors increase as well.
- Free trade increases pressure on detection practices, leading to oversimplification and lower efficacy.
- Increased agricultural trade increases exposure to diseases from foreign sources.
- As the average size of commercial livestock operations increases, more animals are at risk per outbreak.
- Exotics are more and more often found on modern hobby farms, hunting preserves, in aquaculture, and as pets, and the variety of backgrounds of these animals presents wide-ranging exposure to diseases for which immune systems are often unprepared, such as the recent bovine tuberculosis problems in Michigan and the increase in wildlife rabies throughout the U.S.

SUCCESS CREATES NEW PROBLEMS	
Successes have generated new problems and burdens for APHIS-VS, creating issues that are at once more insidious and more important than ever to be resolved.	
SUCCESS	**RELATED OBSTACLE**
As opportunities for exports grew, the livestock industry cooperated with APHIS-VS programs and recommendations in order to make their product more marketable overseas.	The healthy U.S. livestock population that resulted has encouraged more trade. Greater trade has led to lower trade restrictions, weaker border protections, and a more demanding requirement for cooperation from states and industry.
APHIS-VS and predecessor agencies have eradicated animal diseases such as foot-and-mouth disease, classical swine fever, vesicular exanthema, highly pathogenic avian influenza, and screwworm.	Healthier animal populations have led to larger and more diversified animal populations. This in turn creates the need for newer eradication and protection strategies to deal with these new environments.
Highly educated, well trained, and adequately staffed veterinary and technician corps direct effective eradication programs. These groups and individuals work closely with producers, whose cooperation is mission-critical.	Because of the successful eradication of endemic diseases, there has been a reduction in trained state and federal animal health personnel, who are no longer available for immediate duties. However, these individuals are also the ones to be called upon in a crisis, and now they are unavailable. In addition, retirement of staff and lack of ongoing professional training has diminished the knowledge base and networking of staff responsible for vital programs.

Primary Recommendation

Congress and the United States Department of Agriculture must provide funding and act to rebuild the state and national infrastructure for animal disease control, emergency disease preparedness, and response.



Foot-and-mouth disease warning sign, Exmoor UK 2001 *© Peter Dean*

MAJOR FINDINGS AND RECOMMENDATIONS: HIGHLIGHTS

The four committees focused on diverse aspects of animal health, but all arrived at similar views on the current state of disease control. They observed a dramatic national and international acceleration of trade in animals, and animal and plant products. Together with exponential increases in worldwide personal travel, mail parcels, and emerging animal diseases, these changes have converged to significantly raise the stakes for animal disease control.

This review finds performance adequate in handling most assigned roles, and even heroic in some historical efforts to eradicate diseases that have infected U.S. livestock—but resources are fast becoming overwhelmed.

This review calls for improvements in areas including, but not limited to, staffing, equipment, surveillance, detection, applied research, communications, and border security. It also calls for better interagency and interdepartmental cooperation, and the resources to facilitate it.

Many of the committees' recommendations will require increased federal funding. While the committees recognize the factors that can delay funding for these or any proposals, the members also note that many recommendations contained herein will cost little, and assert that rapid implementation of these proposals will immediately and significantly help bridge the widening gaps in the nation's animal disease detection and control capabilities.

P **The stakes are high.** Animals are moved farther and faster than ever before—and so, therefore, are animal diseases. Multibillion-dollar animal industries can be damaged and even destroyed in a matter of days by these diseases—and people who come in contact can quickly contract illnesses and even die. This potential for economic and biological damage means the U.S. must use the utmost care to prevent the spread of animal-borne disease.

P **The agency's performance has been strong, but escalating demand is overwhelming resources and facilities.** Staff is down six percent (FY97 to FY2000), while international animal product imports rose 44 percent and international travel arrivals increased 15 percent.

P **APHIS surveillance programs should be integrated into a National Surveillance System (NSS).** APHIS must be able to detect foreign animal and emerging diseases; monitor disease trends and threats in the U.S and other countries; detect risk, evaluate control programs; and provide adequate animal health information. The system should make better use of partnerships and technology.

P **APHIS and other agencies need significant recruiting efforts to assemble a deep and experienced personnel pool for crisis-level response to serious animal disease outbreaks.** Members should be drawn from the ranks of retired animal health professionals, technicians and other skilled volunteers from government and elsewhere.

P **APHIS should form a new, integrated Agricultural Inspection and Quarantine (AIQ) unit comprised of both animal and plant professionals.** This will require a mix of current Plant Protection and Quarantine (PPQ) personnel, veterinary medical officers (VMOs), animal health technicians (AHTs), and others to ensure competent coverage of all agricultural commodities. The process could begin with integration of PPQ and APHIS-VS staff at ports of entry.

P **APHIS should expand and improve its system of gathering international health information to support better dissemination of information in real-time and hard copy.** This should begin with assignment of communications staff to enhance worldwide monitoring of animal disease risks.

NATIONAL GOALS FOR ANIMAL DISEASE CONTROL

Partnerships and Leadership
State and federal government agencies must exhibit leadership and develop partnerships to contain animal diseases. This will require communication, coordination of activities, and strategy that includes industry, farmers and ranchers, academicians, and consumers.

Applied Research & Development
The United States Department of Agriculture (USDA), state agencies, and universities must rapidly allocate funding into applied research on animal disease detection, control, prevention and treatment, and emergency response systems. Congress should increase funding for this work and encourage collaboration on meeting APHIS' short- and long-term research needs. APHIS needs a process to develop, communicate, and meet its applied research needs.

Infrastructure
Virtually all APHIS-VS components need increased funding to improve human resources, laboratories, and technological capabilities. Staff is now overwhelmed by the volume of work, and is inadequate to handle emergencies. An improved state infrastructure is especially needed, as are state-federal partnerships at the local level, where programs are actually carried out. In addition, the National Veterinary Services Laboratories (NVSL) and Centers for Veterinary Biologics (CVB) at Ames, Iowa, must be modernized according to the APHIS-ARS (Agricultural Research Service) Master Plan for Facility Consolidation and Modernization and Plum Island, New York, must be renovated according to its Modernization Plan.[1]

Organizational Structure
APHIS needs improved organization and delegation of authority. Field offices need more autonomy. PPQ and APHIS-VS staff at ports of entry should be reorganized into an integrated unit. Regulatory authorities need clarification and reinforcement.

Communication & Education
People, goods, and livestock can easily move between countries. International travel is inexpensive and easy. Unfortunately, this ease of situation contributes to the easy movement of animal disease and individuals between nations and environments. Information on risks should be shared as broadly as possible to avoid outbreaks of disease.

Coordinated Information
Inspection operations should be linked by a shared database and communications network.


Plum Island, New York

BIOTERRORISM

Information gathered after the break-up of the Soviet Union on biological warfare capabilities and evidence of biological warfare programs in Cuba, India, and Iraq, provide sobering insights into the nature of sophisticated biological weapon programs. Many agents with potential bioterrorist use are zoonotic pathogens familiar to veterinary professionals. In addition, it is also apparent that agriculture is a target of biological weapons programs. Yet a recent Rand Commission report indicates "the potential for terrorists to disrupt economies and societies by introducing pathogens into the food chain and livestock is only now being taken seriously by government agencies."

Bioterrorism is easy to execute, and poses little risk to the perpetrator. Many agents are readily obtainable in countries where foreign animal diseases (FADs) are endemic, and can be easily introduced to sites of livestock production. The pasture, range, and feedlot management of many livestock animals place animals along public roads and highways, allowing easy exposure. The recent epidemic in the United Kingdom (UK) demonstrates in stark terms that there are secondary economic, social, and political impacts that accompany the tragic primary impacts of animal and human sickness and deaths. As the UK experienced with other animal health issues, it could take decades to recover from such damage. In addition, domestic livestock are not the only animal populations potentially endangered by agroterrorism. Introduction of FAD agents into wildlife, zoos, and wild animal parks could have profound effects on potential viability of those animal populations; of particular concern are endangered species.

The committees are mindful of these threats and the lessons they impart. Taken with the new focus on the terror threat in the aftermath of the events of September 11, 2001, the committees stress that the potential for bioterrorism underlines the importance of the recommendations and principles of this report.

SUMMARY: A national strategy, melding the nation's federal, state, and local resources, would be capable of responding to any type of animal health emergency, including foreign animal diseases and bioterrorism. Agents that could be used in a subversive manner to disrupt animal agriculture are not new to veterinarians. However, the need to enhance and maintain a state-of-the-art national surveillance system has never been more critical.

Foot-and-mouth disease pyre, Devon UK 2001 *© Peter Dean*

COMMITTEE REPORTS

Domestic Detection
& Surveillance

Exclusion

International Information

Response

Domestic Detection and Surveillance Committee Report

Mission

The mission of the committee was to review current Animal and Plant Health Inspection Service's (APHIS) Veterinary Services' (VS) detection and surveillance activities, and to make recommendations for improvements and new initiatives.

Notes on Findings

The nine principles and associated 21 recommendations in this report outline a strategy to develop a comprehensive, coordinated, and integrated National Surveillance System (NSS) utilizing government and non-government resources and collaborations (see NSS diagram, Appendix V). It is envisioned that the NSS would be developed and operated in partnership with industry, state, and university allies, and would be coordinated and managed through APHIS-VS. APHIS-VS would provide the leadership, national expertise, and critical reference activities through their Centers for Epidemiology and Animal Health (CEAH), National Veterinary Services Laboratories (NVSL), Center for Veterinary Biologics (CVB), and APHIS-VS headquarter and field services.

Numerous surveillance strategies were presented and discussed. Currently, program-driven surveillance efforts are predominant, primarily to support eradication programs against diseases such as brucellosis, tuberculosis, and pseudorabies.[2] There was recognition that additional emphasis on surveillance was needed:

- Brucellosis, Tuberculosis, and Pseudorabies Program staff emphasized the seminal role of enhanced surveillance to complete these eradication programs.
- Emergency Programs staff discussed the challenges of foreign animal disease (FAD) surveillance.
- The Import/Export staff pointed out the unmet and increasing demands for surveillance information to support international trade.
- The ongoing monitoring activities of the National Animal Health Monitoring System (NAHMS) and the emerging issues evaluations of the Center for Emerging Issues demonstrated the breadth of stakeholder involvement with surveillance and increasing interest of stakeholders in the resulting animal health information.
- The laboratory challenges for meeting surveillance needs was reinforced for both domestic and foreign animal disease surveillance.
- The industry benefits were recognized for collaborative surveillance and certification programs such as the National Poultry Improvement Plan.

APHIS-VS has an impressive portfolio of successful surveillance activities in disease eradication programs, foreign animal disease investigations, and the National Animal Health Monitoring System (NAHMS), including collaboration with the states and animal industries plus other federal agencies. New initiatives in the area of geographic information systems and emerging issue evaluation show that APHIS-VS continues to pioneer innovations in surveillance methodology. Site discussions with the committee also demonstrated the wide array of epidemiology expertise that exists within APHIS-VS.

But missing from the staff presentations and discussions with the committee was evidence of a shared vision of surveillance and effective integration of activities. Several speakers presented their own personal visions of surveillance, often highlighting the differences between their concepts and those of other individuals and staffs. The committee heard numerous comments suggesting that surveillance activities are seen as program specific with little coordination between different initiatives. Several individuals were not aware of existing efforts to integrate and coordinate activities within APHIS-VS.

The committee noted significant strengths in the experience, commitment, and disease control successes of the existing APHIS-VS national surveillance programs. The current program strategy focuses on specific diseases and commodity groups, and in doing so, does not have sufficient flexibility to efficiently respond to new and emerging issues or rapid changes in animal management and husbandry practices that may influence animal health on a regional or national level. In addition, there is not a single coordinating process for surveillance programs and emerging surveillance needs.

SURVEILLANCE: BY DEFINITION

Surveillance may be defined as the ongoing systematic collection, collation, analysis, and interpretation of data and dissemination of information to those who need to know so that action can be taken. Animal health surveillance data is used to:

- Detect unusual clusters of disease (spatially and temporally);
- Document the geographic and demographic spread of an outbreak;
- Estimate the magnitude of a problem;
- Define or assess the health status of a population including endemic disease levels;
- Detect changes in health practices, environmental conditions, exposure, and exposure or other risk factors;
- Portray the natural history of a pathogen or disease;
- Epidemiologically connect sporadic cases in an area;
- Identify factors responsible for disease emergence;
- Facilitate laboratory and epidemiologic research;
- Plan national control and eradication programs; and
- Assess the success of specific intervention efforts for disease control or prevention.[3]

The importance of surveillance to the overall mission of APHIS-VS is highlighted in Goal Two of the current APHIS-VS Strategic Plan: "*Monitor the health and productivity of U.S. animal populations and monitor health-related attributes of animals products and veterinary biologics.*" In the APHIS-VS Strategic Plan under Goal Two, a key objective is to "*Develop a comprehensive and coordinated approach to animal health monitoring and surveillance.*" To begin development of this comprehensive and coordinated approach, an effort is currently underway by APHIS-VS to develop a model surveillance system for swine that would then be extended to other species.

Methods and Meetings

The committee conducted site visits at:

- The Centers for Epidemiology and Animal Health (CEAH), Fort Collins, Colorado;
- The Foreign Animal Disease Diagnostic Laboratory (FADDL), Plum Island, New York;
- Animal Health Program headquarters, Riverdale, Maryland;
- The National Veterinary Services Laboratories (NVSL), Ames, Iowa; and
- The Center for Veterinary Biologics (CVB), Ames, Iowa.

In addition, individual interviews were carried out with APHIS, APHIS-VS, and Plant Protection and Quarantine staff.

PRINCIPLE 1a
A comprehensive, coordinated, integrated surveillance system is the foundation for animal health, public health, food safety, and environmental health.

To take full advantage of future opportunities in animal agriculture, the U.S. must have a comprehensive, coordinated, and integrated surveillance system. This National Surveillance System (NSS) will:

- Provide the mechanism to protect and improve the health of the nation's animal populations;
- Support the production of safe and wholesome products; and
- Facilitate access to domestic and international markets.

The NSS must be *comprehensive* by drawing upon a vast array of sources of information, utilizing diverse health indicators and establishing mechanisms for action on the collected data. Further, the NSS must be *coordinated* and managed in order to facilitate the effective and uniform implementation of the system to meet the defined goals. It must be *integrated* by making surveillance information broadly accessible and easily exchanged among interested parties. The current surveillance system does not meet these objectives.

Surveillance is a critical core function of APHIS and APHIS-VS, and the implementation of the NSS is critical to efforts in animal and public health, food safety, and environmental health. Other countries have committed significant effort and resources to establish an effective and efficient surveillance system. The U.S. must take similar and immediate steps to implement the NSS in order to remain competitive in the international marketplace.

Recommendation

1. Create a national surveillance director leadership position with responsibility for the NSS.

Remarks

Several excellent surveillance concept papers and proceedings developed by APHIS-VS staff were reviewed by the committee. Works included:

- *Summary of the 1998 Animal Health Monitoring and Surveillance Work Conference;*
- *One Page Plan for More Integrated and Comprehensive Animal Health Surveillance;*
- *Animal Health Event Surveillance in Veterinary Services; and*
- *The Role of Surveillance in National Animal Health Strategies.*

All of the papers indicate an understanding of the concept and necessary components of a comprehensive, coordinated, integrated surveillance system; why it is important; what it should accomplish; and who needs to be involved. From site visits and interviews, it is apparent that what is missing is a central coordination of surveillance efforts. Various initiatives are underway without one group or person "in charge" or having the authority to make the changes necessary to actually coordinate and implement these excellent surveillance plans.

Pertinent observations include:

- Surveillance is now concentrated on "program" diseases such as brucellosis, tuberculosis, and pseudorabies, and is supervised by the National Animal Health Program staff with responsibility for the eradication program. Historically, these surveillance programs have been effective for disease eradication, but have lacked

flexibility and ability to easily effect changes. Since they are disease-specific, they do not have the flexibility or inherent design to detect new or emerging diseases, environmental or societal changes impacting animal health, or changes in husbandry or management practices that directly affect animal health and disease introduction or transmission.

- The sample collection efforts and budget for current surveillance programs are assigned to the regional directors and their staff. The surveillance needs determination (Centers for Epidemiology and Animal Health and Animal Health Programs staff); policy (headquarters); and the means to accomplish surveillance (regional offices) are separate functional and budgetary entities. When trying to make changes or ask questions about current surveillance programs, it is not clear "who is in charge," or whether all interests impacted have been involved in the design and implementation of surveillance efforts.

- CEAH has responsibilities for surveillance data analysis and monitoring. While CEAH is staffed with excellent epidemiologists, it is disconnected from program staff and regional offices that are collecting information to be analyzed. The level of collaboration for the technical design and prioritization of surveillance programs is not clear among CEAH, program staff, the National Veterinary Services Laboratories, and regional offices. It appears to be somewhat dependent on the relationships of individual staff members with CEAH personnel and/or specific industry relationships and concerns.

- The Animal Health Monitoring Systems (AHMS) budget provides funding for the various surveillance programs. The budgeting process makes it difficult to understand the costs of individual surveillance programs, and the level of technical input into the actual allocation process is not apparent.

- Due to the fragmentation of surveillance design and analysis, policy, and sample collection, industry groups and other stakeholders have no one central contact if they sense a need for action concerning new or emerging diseases or even program diseases. Decisions need to be made on an ongoing basis but, with the fragmentation of responsibilities, actions are often not taken in a timely manner. Efficiencies could be gained by monitoring for important diseases beyond program diseases, but no clearly identified group or individual is empowered or directed to coordinate this effort or address emerging or changing needs.

Based on these observations, the committee believes that challenges can be addressed by the appointment of a national surveillance director on a level equal to the regional directors and the director of CEAH. This person should have control of the AHMS budget and supervise the NSS, and should report directly to the deputy administrator of APHIS-

VS. It is important for this person to be in a leadership position to be able to implement the vision of the NSS that has been developed. A clear chain of command will allow APHIS-VS to change, enhance, and increase surveillance, as it becomes necessary to address new challenges and meet international requirements for surveillance.

Without this change to establish a clear leadership position, the subsequent recommendations for the NSS could fail.

The director of surveillance position will provide needed coordination and facilitate effective interaction between staffs, programs, and stakeholders with a role in surveillance.

Recommendation

2. Utilize a Surveillance Steering Committee to provide guidance, priorities, feedback, and evaluation to the NSS.

Remarks

In site visits and interviews conducted for this review, it was apparent that there was limited opportunity for current users of surveillance information to have input into surveillance strategies, direction, and priorities. As noted previously, current surveillance programs are disease- and species-specific, and not integrated into an overall, coordinated plan or central contact to be able to effect changes. Surveillance initiatives first should define the objectives of what is to be accomplished, next identify data sources, and then develop a plan for the scientific analysis of the data. This plan should describe how surveillance information will be disseminated in a timely manner through strategic linkages to stakeholders. Finally, surveillance initiatives should provide opportunities for evaluation and feedback.

Current initiatives do not have an established process for accomplishing all of these critical elements of surveillance. As a result, there is a lack of "ownership" and understanding of surveillance information and its value to stakeholders, as well as a missed opportunity for input both within and outside APHIS-VS. Groups within APHIS-VS are often not asked the surveillance needs for their areas of responsibility. For example, there is not a process for staff addressing import-export issues to put forward their surveillance needs with regard to facilitating international trade. As the NSS is developed and implemented, there needs to be a described process to more actively engage surveillance stakeholders.

The committee recommends the utilization of a Surveillance Steering Committee to provide the opportunity for input and collaboration from surveillance stakeholders. A Surveillance Steering Committee would foster increased understanding of the value of surveillance and advocates for surveillance activities. A critical part of surveillance is the dissemination of the information and an ongoing needs assessment and prioritization of surveillance needs. The Steering Committee would provide this much-needed assistance.

The Surveillance Steering Committee should be composed of representatives of state animal health officials, state diagnostic laboratories, industry, academia, practitioners, and APHIS-VS representatives. The national surveillance director would work closely with this steering committee. Various groups within APHIS-VS need to be represented; other agencies should participate as needed. APHIS' International Services (IS) should provide international information that is pertinent to the work of the Steering Committee.

Representatives to the Surveillance Steering Committee would be responsible for surveying their constituencies for surveillance needs and priorities, providing assistance in the identification of data sources, reviewing surveillance data, helping to disseminate surveillance results to their members, and providing feedback on surveillance objectives.

In addition, the Surveillance Steering Committee would provide a forum to tackle challenging issues such as state uniformity of reportable diseases, coordination of state diagnostic laboratories, incentives for producer participation, and appropriate levels of confidentiality of data sources and surveillance results.

The current National Animal Health Emergency Management Steering Committee could serve as a model for the Surveillance Steering Committee.

Recommendation

3. Encourage use of technological advancements to meet evolving NSS needs.

Remarks

The NSS should utilize scientifically based methods. As with any scientifically based approach, this surveillance system should be a dynamic process in which new techniques and methods can be identified, scientifically validated, and implemented on a regular basis. The methods of the surveillance system should have the flexibility to adopt new techniques without sacrificing its goals and purposes.

The national system, however, should not be the model to test the latest technology for the sake of new technology.

Instead, the national system should assess new technology within the scope of its goals and its efficiency prior to the implementation phase. For example, the concept of a great information management system will not compensate for poor data or an inferior surveillance system. Quality and efficiency in the collection of data, testing samples, interpretation of results, and reporting of the findings should be the priority.

APHIS-VS is encouraged to develop, improve, and nurture formal and informal relationships with other governmental groups (e.g., the Agricultural Research Service, the Centers for Disease Control and Prevention), allied private and state agencies, universities, and individual researchers involved in the development and validation of new technologies, methodologies, and approaches that could be utilized in APHIS-VS surveillance activities. An emphasis should be placed on scientific collaboration and partnerships to encourage the sharing of resources, experience, and expertise from both within and outside of APHIS-VS.

Examples of techniques and methods currently used in some APHIS-VS activities that should be further assessed as potential components of the proposed NSS include the following:

- Multiple-disease testing on the individual biologic or environmental samples;
- Pooling samples for estimation of the presence of pathogens;
- Banking of specimens to support retrospective studies as new animal health issues emerge;
- Using meat juice for antigen and/or antibody testing;

- Use of the software "Pathfinder" as a model to determine and track national and international health condition trends; trends or changes in disease risks; societal, geographical, and temporal associations to changes in disease patterns or exposure, etc.;
- Use of Geographical Information Systems as a method to determine the spatial risk factors for a disease; and
- Use of molecular microbiological techniques (such as Polymerase Chain Reaction) to screen for various disease agents with one test or track patterns of pathogen spread.

APHIS-VS is encouraged to allocate appropriate resources for assessing and scientifically evaluating new techniques and approaches for efficient and high quality surveillance.

Recommendation

4. Develop ongoing quality assurance and continuous improvement plans for evaluation of the effectiveness of the NSS.

Remarks

The NSS will be only as effective as its implementation. The current system does not have a measure of reliability, and during the review interviews, concerns were expressed about validity or trust in some current surveillance results and techniques. A quality assurance program to verify data and results accuracy does not currently exist for all components of the NSS. Individual reviews such as the slaughter surveillance review for cattle brucellosis have pointed out deficiencies and concerns with this current surveillance program. During interviews conducted at site visits, the need for quality assurance to enhance confidence in surveillance information was noted.

A quality assurance system must be developed to continually ensure and evaluate the quality of all aspects of the NSS. The quality assurance program should have a stated goal of continued improvement and include complete documentation and routine review of all components of the system from project design, sample collection, test performance, and data manipulation and analysis to interpretation and reporting. User trust in the NSS is critical to ensure effectiveness and sustainability. Examples of components to be reviewed, include but are not limited to, the following:

- Populations represented and population and species interactions (note that surveillance can be designed for certain populations and may miss others);
- Animal movements (changes in industry demographics or animal movement patterns may change the population that being sampled, as noted in the recent slaughter surveillance review for cattle brucellosis);
- Data collection processes such as accuracy of sample labeling, shipping and handling integrity, laboratory test performance, database errors, etc.;
- Measurement of outcomes, including sensitivity and specificity of diagnostic tests and test strategies;
- Evaluation of sampling and analysis methods used; and
- Effective utilization of existing data from other sources.

The Surveillance Steering Committee should be involved in the selection and reporting of program audits and technical reviews conducted by experts in the topic areas.

Recommendation

5. Secure the appropriate authority for access to sampling and information needed to implement the NSS.

Remarks

The appropriate authorities may not be in place to implement the NSS. Access for sampling in packing plants has not been authorized in some cases but should be in place where needed. There are questions about the authority to test samples in a laboratory for more than the subscribed purpose.

The issue of federal and state authority needs to be addressed. Clear guidelines should be formulated and a consensus should be reached on what authority, partnerships, and Memoranda of Understanding (MOU) are needed and appropriate for government to have for implementing and managing the NSS. Many emerging disease surveillance programs will depend upon cooperation and networks with producer groups. These types of surveillance efforts will be extremely valuable but will have to be approached as to specificity and above all the levels of confidentiality prescribed.

The Surveillance Steering Committee should participate in reviewing current and needed authorities and options for addressing confidentiality issues including access to databases; sharing of information between industry, state, regional, and/or international agencies; and national trade implications of such programs.

Recommendation

6. Communicate surveillance findings to stakeholders and determine if surveillance meets stakeholder needs.

Remarks

APHIS-VS conducts much more surveillance than most stakeholders know. Even for program diseases, surveillance results are not regularly and actively communicated to the stakeholders in a user-friendly manner. This results in a lack of intense interest in or feedback on surveillance results, and lack of cooperation with future surveillance efforts. It is essential that feedback loops be built into surveillance plans to build "customer" confidence. Constant evaluation is needed to assure that the stated goals are being met and that the information is of use to the stakeholders. Animal health surveillance is not conducted solely to collect data but for the express purpose of disseminating summarized health information on a timely basis to decision-makers. Results of surveillance should stimulate some type of action.

In the communication of surveillance information, confidentiality issues with regard to specific farms, regions, or states need to be addressed. Open communication of surveillance information is critical for building and maintaining trust both domestically and internationally.

Suggestions to improve communication include:

- Adding surveillance status reports to the APHIS-VS website;
- Developing an annual APHIS-VS animal health report;
- Developing surveillance results fact sheets; and
- Working with the Surveillance Steering Committee and stakeholders on a plan for dissemination of results.

PRINCIPLE 1b
The NSS must ensure early detection and response to emerging diseases, foreign animal diseases, and endemic diseases.

Just as the NSS must have a multiple disease focus, national surveillance must be developed to meet national needs across various patterns of disease occurrence. This system must be flexible enough to ensure rapid detection and response to foreign animal disease incursions, spikes in emerging diseases, and changes in endemic diseases.

Recommendation

7. Ensure the design of the NSS provides early detection of emerging diseases to allow for an appropriate and timely response.

Remarks

Several new or re-emerging animal diseases have recently been detected in the U.S. It is critical that the NSS provides for the detection of emerging diseases and delivers information to respond to this emergence. APHIS-VS has recognized the need to "quickly identify, assess and respond to emerging animal health issues in order to prevent or limit the sudden and negative economic, food security, and public health effects of those issues."[4] While the causative agent may not be immediately known or a specific diagnostic test may not be available for an emerging disease, the NSS should have the capability to provide for the identification of unusual or new animal health situations.

Diseases emerge through the interaction of an agent, host, and the environment. Agent, host, and environmental characteristics constantly change; therefore, the emergence of new diseases is to be expected as the norm rather than as an unusual occurrence. Thus, the system should be able to track changes in production practices, animal demographics, vector distributions, wildlife populations, etc., which may result in an emerging disease or increase risk factors that allow introduction and/or transmission of specific agents not previously identified.

While APHIS-VS is currently developing plans (outlined in *Emerging Animal Health Issues System*[4]) to address emerging animal disease detection and response, that initiative is separate from the overall surveillance initiative underway with regard to placement of staff and plans. In addition, the initial diseases included in the first comprehensive surveillance plan to be developed do not include an emerging disease. To have a coordinated, comprehensive system, the NSS must include emerging disease detection, determination of regional differences in populations/population interactions, management and husbandry practices, wildlife surveillance, and should incorporate a response plan with each specific surveillance project.

Resources should be allocated to establish and maintain banked samples for retrospective tracking of specific disease emergence.

Recommendation

8. Ensure that the design of the NSS incorporates foreign animal disease surveillance needs.

Remarks

The U.S. continues to face increasing risks of acquiring foreign animal diseases (FADs) at any time, as illustrated by recent outbreaks of West Nile virus in the U.S. It should be noted that in countries considered to have very good systems in place to prevent the introduction of exotic diseases, foot-and-mouth disease (FMD), classical swine fever, and bovine spongiform encephalopathy (BSE) have recently occurred. As more and more countries acquire these diseases, the likelihood of accidental introduction into the U.S. also increases. The potential for agroterrorism also contributes an additional element of risk for a FAD epidemic. The early detection of the first case(s) of a FAD will be critical in

limiting the impact of these diseases on the U.S. economy and livestock populations. This early detection should be a component of the NSS. In addition, the documentation of the details of foreign animal disease investigations is important in gaining international recognition of the U.S. assertions of freedom from these diseases.

The APHIS-VS mission is clear in protecting U.S. livestock populations from the introduction of FAD, and there are several existing activities that are supporting this part of the APHIS-VS mission. The existing resources for these activities, however, are not sufficient to satisfy demand in the effort to control the introduction of FAD. The available resources for the diagnosis of these diseases, collection of information, collection of biological samples, and implementation of intervention strategies are limited.

A site visit to the Foreign Animal Disease Diagnostic Laboratory (FADDL) at Plum Island, New York, highlighted the lack of personnel resources to address just the increased diagnostic sample submissions in the U.S. that occurred following the European FMD outbreak, let alone an actual FAD outbreak in this country. The recent outbreak of foot-and-mouth (FMD) in the United Kingdom and Europe has initiated several discussions and plans to deal with this type of action. Recommendations from these discussions emphasized the importance of maintaining a good monitoring of livestock health to ensure the economic well being of the livestock industry. It is vitally important to national interests that APHIS-VS be the leader in coordinating the efforts to rapidly detect the entry of a FAD to the U.S. livestock industry, as well as maintaining a viable surveillance program to show freedom from disease for international trade purposes.

Implementation recommendations include:

- Incorporate clinical signs and biological sampling that can be related to suspicious FADs as part of the NSS;
- Include producer awareness and recognition of FADs through publication of reports related to the number of investigations with descriptions of their outcome;
- Participate in the awareness, training and reporting of FADs to the veterinary community, including the accreditation process and its link to the veterinary school curriculum with accreditation (both the U.S. Animal Health Association and the National Institute for Animal Agriculture have passed resolutions in 2000 in this respect);
- Explore ways to increase the numbers of FAD-trained veterinarians, especially for species-specific veterinarians through local training programs;
- Explore mechanisms to involve state diagnostic laboratories, Office International des Epizooties (OIE) reference centers, and university laboratories in the surveillance for and investigations of FAD through a systematic process and protocol;
- Develop plans that include zoning through surveillance in case of FAD;
- Provide the National Veterinary Services Laboratories as a reference laboratory for confirmation of any FAD on a national level; and
- Establish a contingency plan to handle FADs as part of the NSS.

Recommendation

9. Ensure the design of the NSS incorporates endemic disease surveillance needs.

Remarks

The design of the NSS must render it able to provide information about priority diseases endemic to the U.S. The NSS must be able to provide initial baseline estimates of disease or pathogen occurrence for important diseases as well as changes in patterns of disease and pathogen occurrence. These are critical to prioritization and decision-making, especially as part of the evaluation of the need for future prevention or control programs or the success of existing control programs. The NSS cannot provide this information about all diseases and will need to develop, with industry input, a process to determine priorities for surveillance and mechanisms to create working partnerships to provide necessary data and samples.

VETERINARY SERVICES SURVEILLANCE PROGRAMS	
Bovine Disease Programs	Bovine Tuberculosis Bovine Brucellosis Johne's Disease Bovine Spongiform Encephalopathy Bluetongue
Ovine and Caprine Disease Programs	Scrapie
Bison and Captive Cervidae Disease Programs	Tuberculosis Brucellosis Chronic Wasting Disease (Captive Cervids)
Swine Disease Programs	Pseudorabies Swine Brucellosis Classical Swine Fever/African Swine Fever Swine Health Protection Program Trichinosis
Equine Disease Programs	Equine Infectious Anemia Equine Viral Arteritis Contagious Equine Metritis Equine Encephalitis West Nile Virus
Poultry Disease Programs	Avian Influenza Exotic Newcastle Disease National Poultry Improvement Plan Live Bird Market Surveys
Other	Foreign Animal Diseases National Animal Health Reporting System National Animal Health Monitoring System National Antimicrobial Resistance Monitoring System (participant with other agencies)

Changes in animal movement, vector patterns, wildlife interfaces, and use of specific management practices such as vaccinations are critical to the control and prevention of endemic diseases. In addition to collection of disease and health information, the NSS must provide information on changes in key environmental and management variables that may result in changes in the current disease situations.

The initial diseases included in the first APHIS-VS comprehensive surveillance plan do not include an endemic disease. This needs to be changed to include an endemic disease in the model system. APHIS-VS already has unique capabilities within existing monitoring and surveillance programs that can be built upon in the development of this aspect of the NSS. NAHMS has recognized expertise in the implementation of national studies, and has expanded its monitoring portfolio to include targeted studies and ongoing monitoring projects. Coordinating NAHMS activities with other existing APHIS-VS monitoring programs in priority animal health areas, in collaboration with livestock and poultry industries, can provide a framework for the NSS within the endemic disease arena. A serum bank is important to retrospectively evaluate changes in pathogen distribution.

Within specific health issues of concern, a collaborative process involving the Surveillance Steering Committee and the interested groups should be adopted to determine target populations to be sampled (e.g., commercial vs. hobby farms), to develop reporting criteria, and to respect the confidentiality of private entities involved.

PRINCIPLE 1c
The NSS must meet international surveillance requirements.

The ability to meet international standards for surveillance and diagnostics impacts the capacity of the U.S. to participate in the trade of animals and animal products. The World Trade Organization has designated OIE as the international standard setting body for animal health.

Recommendation

10. Expand participation in international animal health discussions and activities.

Remarks

It is critical that the U.S. actively participates in the OIE and other international committees and consultations that develop the animal health standards for diagnostic testing and surveillance requirements on which trade is to be based. Without this participation and understanding of expectations, the U.S. will not be able to effectively compete in world trade of animals and animal products.

In addition, the U.S. animal health system needs to be transparent to trading partners. Participating in international animal health discussions allows other countries to better understand how the U.S. is meeting international requirements, and it also provides opportunities to learn from the experiences of other countries. It is important that APHIS-VS staff who evaluate other countries' surveillance programs for approval to export to the U.S. clearly understand international standards and what requirements the U.S. should expect to be met.

Recommendation

11. Exchange ideas and personnel with other countries in surveillance methodology.

Remarks

Many countries have devoted considerable efforts to the development of comprehensive surveillance programs, and they continue to explore ways to enhance surveillance methodology.

The U.S. should actively study other countries' surveillance programs, especially the other Quadrilateral countries (Canada, Australia, and New Zealand) and European Union countries with similar intensive agriculture.

APHIS-VS should encourage travel to other countries to study surveillance programs, participate in international scientist exchanges and training programs, and facilitate diagnostician exchanges and training.

PRINCIPLE 1d

NSS cannot be implemented by APHIS-VS alone. Partnerships with states, animal industries, veterinary practitioners, universities, Office International des Epizooties (OIE) reference centers, and diagnostic laboratories are essential.

A partnership approach is needed for the NSS to supply many of the components needed for surveillance that are outside APHIS-VS' resources.

Recommendation

12. Ensure the design and implementation of the NSS includes state governments, universities, and commercial diagnostic laboratories. Explore implementation of a national laboratory system utilizing a regional laboratory network similar to the Centers for Disease Control and Prevention model.[5] Create opportunities for innovative approaches for surveillance with surveillance partners and allied industries.

Remarks

Many surveillance activities are carried out either formally or informally at the state and local level. State diagnostic laboratories are most often the first points of contact for disease diagnostic submissions. Much of this information is not accessible to current national surveillance initiatives for several reasons, including lack of standardized case definitions and databases, confidentiality concerns, and lack of incentives to share information. There are currently efforts within the American Association of Veterinary Laboratory Diagnosticians (AAVLD) to develop ways to better communicate diagnostic information among laboratories, including standardization of case definitions and creation or utilization of compatible databases. There are also discussions between AAVLD and APHIS-VS on how appropriate information could be shared for surveillance. A Memorandum of Understanding (MOU) is currently being completed between AAVLD and APHIS-VS. Private laboratories conducting diagnostic testing are an untapped resource for surveillance information.

It is critical for a complete and effective NSS to have reliable and uniform participation by state governments, state and university laboratories, OIE reference centers, and private laboratories. The current National Animal Health Reporting System, which collects state diagnostic results for the OIE List A and B diseases, does not have full state participation due to confidentiality concerns and the lack of incentives to participate.

APHIS-VS should explore adaptation of the Centers for Disease Control and Prevention concept of regional laboratories, reference laboratories, and field sites[5] to create a national laboratory system. APHIS-VS should explore creative ways to facilitate and encourage state participation. This could include grants or cooperative efforts with states and industry for their participation. Resources must be allocated to APHIS-VS to ensure the success of the MOU with AAVLD to create a national laboratory system. The Plant Protection and Quarantine's Cooperative Agricultural Pest Survey also may provide a model for state and federal surveillance coordination. Participation by states in the Surveillance Steering Committee would allow many issues of concern and barriers to state participation to be addressed.

Recommendation

13. Seek opportunities to utilize resources of other federal agencies to enhance the NSS.

Remarks

Numerous federal agencies have surveillance activities within their mandate. Some of these activities are related directly or indirectly to animal health issues and programs. Therefore, available resources and information from existing surveillance systems can enhance the NSS. Examples of existing surveillance resources within federal agencies are:

- The Food Safety and Inspection Service performs ante- and post-mortem inspections on slaughtered animals. The information gathered from these inspections could help to determine the type of diseases and animal health problems that can be identified at the end of the animal cycle.

- The Food and Drug Administration monitors animal feed producers and has data on antimicrobials for animal use. Background information about animal feed and the use of antimicrobials in animals should be part of the monitoring for potential risk factors associated with animal health in the NSS.

- The Centers for Disease Control and Prevention compiles food safety-related statistics. The NSS should utilize appropriate information from this source to study foodborne diseases associated with animals and animal products.

- The National Agricultural Statistics Service conducts the agricultural census and a whole range of surveys concerning animal production. Some population-based statistics and denominator issues can be used by the NSS. Changes in demographics of animal agriculture may signal potential adverse health events.

- The Economic Research Service estimates the cost of livestock production. These economic costs then can be utilized in the NSS to determine the cost of specific health conditions.

- The Department of the Interior collects some wildlife data that could be used as indicators for the threat of specific health conditions from or to wildlife species.

Selective collaboration with other federal agencies can benefit the APHIS-VS national animal health surveillance system. Development and implementation of joint initiatives and integration of data collected by other agencies provide a cost-effective strategy for APHIS-VS to expand the overall surveillance system and the expertise available to compile and analyze the surveillance data.

Building successful partnerships, however, requires the establishment of trust and mutual recognition of the benefits accruing. True partnerships involve joint planning, flexibility and the willingness to work toward "win-win" situations. Expanding collaboration or adding additional surveillance elements is easier when a spirit of partnership already exists and a history of successful ventures is evident. MOUs are useful tools to document collaborative arrangements and identify responsibilities and resources.

Recommendation

14. Create partners and advocates for the NSS by developing an understanding of its value with participants, users, and beneficiaries.

Remarks

A surveillance system is useful if it generates an animal health response leading to control, eradication, or prevention of an adverse health event; or to a better understanding of a health situation. Surveillance data should provide a reliable knowledge base that stakeholders such as producers, allied industries, practitioners, and state and federal policymakers can use to make decisions. These decisions may allow stakeholders to better position themselves in the national and international marketplace, ensure the development of appropriate and needed animal health products, provide relevant animal health advice, or help make scientifically based policy decisions.

Currently, there are no vocal advocates for surveillance activities. Surveillance activities for animal health and public health have little visibility with government officials, Congress, industry, and the public.

Enhanced communication of the current uses of surveillance information and its value to stakeholders is needed. A marketing plan on the value of surveillance targeted to the unique needs and perspectives of surveillance stakeholders is needed for the NSS. It should highlight examples of how current surveillance information has been used successfully with that specific audience and what new information will be available from future surveillance initiatives. Not only should this be coordinated with communication of surveillance results, but it also needs to specifically look for examples of how surveillance information was used to effect a positive outcome for animal or public health.

PRINCIPLE 1e

Surveillance is critical to the mission of APHIS-VS. It is the foundation for APHIS-VS activities including domestic disease control and eradication programs, emergency preparedness and response, and trade.

Recommendation

15. Create a common vision and sense of urgency for surveillance within APHIS-VS personnel.

Remarks

It can seem simple to define surveillance and provide examples of APHIS-VS surveillance activities. However, the review found little evidence of a shared definition of surveillance among APHIS-VS personnel. Most individuals defined surveillance within the limited framework of their own programmatic responsibilities. In general, headquarter and staff personnel saw their responsibilities stemming from specific program activities and emergency response and not as an integral component of surveillance. Few examples of successful coordination were presented, and little evidence of integration of surveillance activities was provided. Several speakers while discussing the concept of an integrated and coordinated national animal health surveillance system cited their own private vision. Though specific individuals were charged with development of an overall surveillance plan, no written charge for this task was known to exist.

APHIS-VS must create a shared vision of an integrated and coordinated NSS. Defining this system is a collective venture that must have the highest priority. All those involved with surveillance, from field veterinary officers and animal technicians to involved industries and beneficiaries, must be included in building consensus around a shared vision. APHIS-VS staff should be able to identify their role in the NSS. State work conferences and other regular meetings should include surveillance planning, review, and

evaluation of results. Training should include the rationale for the surveillance plans. Active solicitation of input and ideas also will engender trust and nurture a sense of shared ownership in the NSS. Furthermore, innovative ideas for integration and coordination will be generated through the collaborative process of defining the shared vision.

This common vision must then be shared throughout the agency and with stakeholders in order to build consensus and a sense of urgency. APHIS-VS must use public presentations as well as written documents to communicate the goals and objectives of the national system and to elucidate specific examples of its implementation and effectiveness. The exemplary contributions of individuals and organizations to the success of the surveillance system need to be identified and rewarded. The visibility and importance of surveillance must be elevated in the eyes of APHIS-VS personnel and stakeholders.

PRINCIPLE 1f
APHIS-VS has the responsibility to provide leadership for areas of surveillance of national interest.

A comprehensive surveillance system will provide the cornerstone of animal health, marketing, outbreak response, endemic disease control, and quality assurance initiatives in the future. The NSS should generate the information necessary to direct resources, establish priorities, assess risk, evaluate control programs, and compartmentalize the consequences of local disease outbreaks to the benefit of the U.S. animal industry considered as a whole. These issues transcend local and state geopolitical boundaries. They cannot be addressed at anything but a national level. Consequently, the coordination and integration of the components of a comprehensive surveillance system must be accomplished at the national or federal level.

APHIS-VS is the only agency that is appropriately positioned to lead the establishment, integration, and coordination of the elements that will comprise an effective animal health surveillance system. APHIS-VS must assume this functional role as a priority mission to support the protection of the health of domestic animal populations and to enable U.S. animal industries to participate fully in the emerging global marketplace.

Recommendation

16. Provide a framework for the NSS including standardization, identification, information management (data capture, description and analysis, interpretation, and dissemination and feedback), and technical resources.

Remarks

A functional NSS is critically dependent on the establishment of standard definitions for disease diagnoses or health events and a consistent method of collecting, analyzing, translating, and reporting the resulting information. APHIS-VS must lead the effort to establish consensus among animal health partners on the standard definitions for disease or health events, and must provide the template and platform for recording those events. The plan and protocols for existing national animal health surveillance systems (the National Animal Health Reporting System and the National Animal Health Monitoring System) can be used as a template for this process.

The elements of an effective surveillance system include:

- Standardization. A prerequisite for the derivation of meaningful analysis and summary information related to the state of health of an animal population is the establishment and maintenance of data integrity. Diagnostic reporting criteria must be established to ensure that data elements are collected in a consistent manner. APHIS-VS should play the central role in the establishment of consensus among the animal health stakeholders on these diagnostic reporting criteria. A diagnostic and

THE IDEAL SURVEILLANCE SYSTEM

Surveillance comprises active and passive activities for observing and recording disease agents, host status, and environmental characteristics. The ideal surveillance system serves to monitor the overall health of populations and geographic regions, tracking the prevalence of endemic disease conditions, auditing disease trends and the success of control programs, identifying the emergence of new or recurrent disease problems promptly, and forecasting agent, host, or environmental changes which may precipitate future disease problems. Ideally, the various components of the surveillance system are integrated and coordinated so as to increase the overall efficiency of the system by reducing redundancy and utilizing data for multiple purposes. Information generated by the ideal surveillance system is statistically reliable and valid, with quantifiable margins of error.

Passive surveillance activities involve the routine collection, compilation, and analysis of data from existing monitoring systems such as other state and federal government agencies, producer organizations such as the Dairy Herd Improvement Association (DHIA), and agribusiness. Active surveillance activities are specifically designed initiatives targeting the collection of agent, host, and environmental data for the purpose of monitoring trends or detecting disease.

Surveillance incorporates both the collection, compilation, and analysis of data and the interpretation of the information generated. Consequently, the implementation of integrated and coordinated surveillance systems depends on epidemiological principles such as case definition, standardization of diagnostic tests, development of descriptive statistics, and implementation of epidemiological studies. Surveillance systems are intimately associated with action plans. For instance, detection of new diseases stimulates responses.

reporting standards group should be established to review diagnostic criteria and to make adjustments as technology and new information evolves. The standards should be adopted and utilized nationwide.

- Identification. Another element of data integrity includes the establishment of a national identification system. APHIS-VS must continue its work to establish a valid national identification system to satisfy the needs of a NSS and meet international expectations.

- Data Capture. Information management is a key component of a NSS. Information management must be a primary planning consideration as the NSS is developed, and at each step of its evolution. The information management system needs to accommodate data collected for endemic, emerging, and foreign animal diseases. It is recognized that there currently are numerous databases and systems designed to capture, record, and store animal health events across the U.S. Data contained therein represent local, state, or national-level health information. These databases, unfortunately, are not consistent in terms of data definitions, operating system, or database formats. However, they do represent a substantial contribution to the body of national information related to animal health and disease events.

  In providing leadership for the NSS, APHIS-VS should explore ways to capture existing data and collate this information into an accurate depiction of the national animal health status. The advent of data warehousing and other technological advancements provide a possible means to take advantage of this existing data. The ability to capture data from a diverse set of tenant databases may obviate the need to discard existing systems and facilitate the expanded use of currently

available data. APHIS-VS should continue to participate in the Agriculture Geographic Data Committee to allow better coordination with technologies throughout the U.S. Department of Agriculture.

APHIS-VS should establish the framework for the collection and analysis of the data elements that support the NSS database. APHIS-VS also must prescribe the data definitions and technical specifications and requirements for national surveillance database data.

APHIS-VS should explore technological mechanisms that allow for the maximum use of existing data. APHIS-VS must, with input from the animal industry stakeholders, identify those existing sources of animal health data. Potential partners and sources of data include veterinary diagnostic laboratories, university laboratories, state animal health databases, animal industry databases, and federal level or program databases. Surveillance system programs should be modified to address any identified gaps in surveillance sampling or data collection.

- Data description and analysis. Data description and analysis is an important aspect of a database or surveillance system. Summary statistics, select queries, and descriptive statistics can help identify areas in need of further investigation or areas that require additional attention and resources. APHIS-VS has substantial expertise in the field of epidemiology. The NSS must make full use of this expertise and integrate the assets currently established within the Centers for Epidemiology and Animal Health with the operational aspects of the national surveillance database.

- Interpretation. Data submitted to support a national surveillance data collection system must be placed in proper context to accurately evaluate its implications to the state of national animal health. Analysis and interpretation of raw data must be evaluated from this contextual perspective. A great deal of the industry reluctance to participate in a NSS is built upon the fear that data will not be properly interpreted.

  APHIS-VS will play a key role in providing the analysis of animal health data and placing it in proper context before establishing or communicating risk or recommending response. APHIS-VS will use this data to help identify priorities for resource allocation, adjust program priorities and direction, define areas in need of additional applied research, and represent the U.S. animal health situation on trade issues.

- Dissemination and Feedback. The reporting system is an important component of the national surveillance network. The end product of analysis, the reports, will be used to substantiate animal health claims, identify national health risks, illuminate emerging animal health issues, and direct program efforts. APHIS-VS must work with its animal health stakeholders to generate periodic reports that provide an accurate representation of the national state of livestock health. These reports are a natural product of data that has been collected and analyzed as described above. Reports should be constructed in such a way to maintain individual producer confidentiality while providing meaningful summary level information. The anticipated products will be instrumental to surveillance system customers including

livestock producers, state level animal health regulatory bodies, accredited veterinarians, universities, etc. APHIS-VS must also provide a mechanism to incorporate feedback from the user groups to effectively assess and respond to its customer needs. Implementation of such a comprehensive system will require additional national commitment of resources, including funding and personnel.

A national animal health database, analysis, and reporting system is one of the most pressing needs faced by stakeholders. It is an essential component of any effort to detect potential disease events early and to respond appropriately. It will promote the efficient use of resources, and play a central role in integrating diverse sources of animal health data into an accurate depiction of animal health. APHIS-VS must develop and support the framework without delay to allow implementation of the NSS.

PRINCIPLE 1g
The NSS requires world-class national diagnostic laboratories.

Diagnostic capability is one of the main requirements of the NSS. The measurement of diseases and health events for the system will depend on the quality of diagnostic capability. The diagnostic capability of the system should be credible on both national and international levels, and should be standardized and acceptable to scientists and animal health authorities. The diagnostic capability of the system should be constructed to optimize the existing diagnostic and scientific ability available through states, universities, and specialized industry laboratories. These laboratory resources, however, should be utilized in a harmonious and standardized manner. Thus, there is a requirement to have a central reference diagnostic laboratory for coordination of these resources for the NSS.

Recommendation

17. Define the role of the National Veterinary Services Laboratories (NVSL) as the reference laboratory in support of the NSS.

Remarks

The National Veterinary Services Laboratories (NVSL) currently have facilities at Ames, Iowa, and Plum Island, New York. The Center for Veterinary Biologics (CVB) located in Ames, Iowa, also supports surveillance activities through diagnostic test kit approvals, approving and monitoring biologics, and related developmental activities. NVSL and CVB are recognized as an OIE-collaborating center for diagnosis of animal diseases and vaccine evaluation in the Americas. NVSL and CVB historically have not had adequate resources to address even current surveillance needs. NVSL currently has 19 open positions, which it does not have the resources to fill, and has identified an additional 23 needed positions. CVB also has 19 open positions. Due to inadequate funding to meet service needs, budgets have been balanced by not filling open positions.

Emergency funding cannot fund permanent positions. In the past, as surveillance plans have been developed, NVSL and CVB have not been included in outlining the diagnostic needs to support the plans. Many of these plans require substantial use of limited resources to implement. The recommendations in the 1999 review of NVSL are still appropriate recommendations.

In addition to being currently recognized as an OIE reference laboratory, the NVSL should be the central reference laboratory for the proposed NSS. NVSL should be the high standard world-class diagnostic laboratory where protocols and tests are standardized and evaluated prior to their applications in the resources laboratories. In addition, NVSL should work to identify and utilize the unique capabilities and expertise of other laboratories. NVSL should maintain its role in providing services to state, industry, international partners, and universities. These services, however, should be considered

as part of the education and awareness of new and advanced diagnostic assays rather than routine testing that can be performed by other laboratories. NVSL should provide leadership to the national laboratory system and participate in the setting of diagnostic standards for national and international animal diseases. To do so, NVSL must be provided with adequate resources and operational budget. Thus, NVSL should actively participate in activities related to applied research and international animal health diagnostic policy.

The NVSL, with adequate funding, facilities, and staffing, must serve as the national reference lab. It should share testing procedures with trading partners to insure that testing is mutually acceptable. Therefore, NVSL must be able to conduct some basic and advanced applied research. The following are required for NVSL's role as the reference laboratory:

- Periodic peer review by independent and credible teams of diagnosticians who are respected both nationally and internationally. These teams would be asked to review the NSS program reference laboratory activities, and as appropriate recommend methods and procedures to improve the quality of the laboratory and to enhance the laboratory's ability to conduct applied research within the framework of its mission;

- Participation in the development and assessment of new diagnostic tests and procedures. The laboratory should be equipped with human and technical resources that are capable of conducting or collaborating on research projects to develop and evaluate assays and diagnostic tests utilizing new knowledge about diseases and their agents in animal populations;

- Collaboration with universities and researchers around the world by forming linkages with academic institutions and fostering student and faculty exchanges;

- Development of collaborations and partnerships with the applied research components of the laboratory and other research institutions, universities, livestock industries, biological companies, etc. as appropriate to the mission of surveillance;

- Leadership in the establishment of a national quality assurance program to maintain the efficient and reliable diagnostic procedures;

- Provision of advanced technical training, reference panels, check tests, and troubleshooting for partner laboratories on important priorities for surveillance;

- Active cooperation in establishing reporting criteria for diseases, risk factors, etc., included in the NSS;

- Seek recognized laboratory certification by the American Association of Veterinary Laboratory Diagnosticians, International Standards Organization 17025, the OIE, or recognized international equivalent;

- Development and testing of a national plan for diagnostic support in event of a widespread “exotic” disease; and

- Interaction with OIE international reference laboratories.

Recommendation

18. Upgrade the capabilities of the National Veterinary Services Laboratories and the Center for Veterinary Biologics for their critical role in the surveillance system.

Remarks

Facility renovations and upgrading of the NVSL and CVB facilities to appropriately handle their critical role in a national animal disease surveillance system is absolutely essential for success of the NSS. The Master Plan for Facility Consolidation and Modernization at Ames, Iowa, highlights the inadequacies of the current NVSL and CVB facilities at Ames. The Modernization Plan for Plum Island provides for continued upgrading of this facility. In addition to facilities, it is critical that NVSL be on the cutting edge of diagnostic laboratory technology.

The Master Plan for Ames and the Modernization Plan for Plum Island are an excellent beginning and should be implemented as soon as possible. Other needs for NVSL and CVB are as follows:

- Funding for operational aspects of facilities after completion of upgrades;

- Funding for upgrading of laboratory equipment;

- In-depth training, including cross training in every department to prepare for the eventual departure of key personnel due to retirement, promotion, etc. Personnel must be trained and ready to assume leadership positions to provide continuity in the system;

- Collection and validation of technological advances, diagnostic tests, and reagents from throughout the world for use by the NSS; and

- Encouragement for technical personnel to enhance competency through continuing education and applied research.

PRINCIPLE 1h
The NSS requires world-class epidemiological expertise.

The quality of the information generated by the NSS depends upon the quality of the design, implementation, and analyses of the data captured. The NSS therefore requires highly skilled epidemiological resources to satisfy its scientific base in data collection, methods, analyses, and interpretations. This epidemiologic expertise should be constructed to optimize the existing epidemiologic ability through states, universities, and other institutions. As technology and scientific knowledge changes, this system will require ongoing evaluation and adjustment.

It is essential for APHIS-VS to have a high caliber epidemiological cadre that is credible and recognized both nationally and internationally. Ever-expanding engagement in international trade and policymaking demands that APHIS-VS develop and maintain epidemiological expertise to meet international standards. By serving as the standard to which other countries measure themselves (in selected critical areas), this expertise allows APHIS-VS to develop models for disease control and prevention.

Recommendation

19. Expand the role of the Centers for Epidemiology and Animal Health (CEAH) as the epidemiologic reference center in the NSS.

Remarks

The Centers for Epidemiology and Animal Health (CEAH) of APHIS-VS are the core for the expertise in epidemiology, livestock agricultural economics, information technology, and risk analysis for USDA-VS. CEAH is a world-recognized multi-disciplinary staff in areas of animal health surveillance, risk assessment, and animal information systems. In addition, CEAH is recognized as an OIE-collaborating center in risk analysis and surveillance systems. During the last two decades, CEAH has contributed globally to several methodological solutions related to surveillance systems. Information generated from several of the CEAH projects has contributed to both national and international animal health programs and decision-making processes.

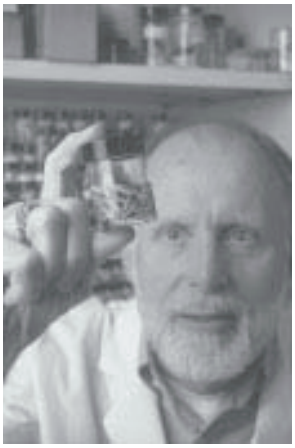
CEAH staff supports several surveillance systems created to meet the current needs of APHIS-VS programs but these systems are not coordinated as part of a NSS. This lack of coordination and lack of a communicated common vision for surveillance within APHIS-VS leads to a "disconnect" between CEAH, field APHIS-VS, and other staffs within APHIS-VS.

In addition, CEAH has exhausted its resources and is unable to carry out current tasks and satisfy demand from both national and international communities. Therefore CEAH does not currently serve uniformly as the national reference center for epidemiological expertise within APHIS-VS.

APHIS-VS is encouraged to place a high priority on expanding the capacity of epidemiological expertise in CEAH and throughout APHIS-VS through the following:

- Increasing the epidemiologic strength within APHIS-VS and strategic partners, based upon needs of the NSS;

- Designating CEAH to play the leadership role within APHIS-VS for epidemiologic expertise and directing CEAH staffs to build linkages with field epidemiologists and other field personnel as well as state and university epidemiologists;



- Encouraging and recruiting veterinary epidemiologists who have field experience and who are also respected by the other sectors of APHIS-VS;
- Including and recognizing the development of surveillance methods as part of CEAH tasking;
- Fostering continued professional development of CEAH personnel to enhance their skills and to bring new ideas to the overall NSS;
- Supporting sabbaticals for visiting scientists and academicians, with CEAH focusing on the development of new surveillance methods and analysis of existing data; and
- Collaborating with universities and researchers around the world by forming linkages with academic institutions and fostering student and faculty exchanges.

Recommendation

20. Improve the coordination of the CEAH, animal health programs, and area, regional, and state epidemiological resources in support of the NSS.

Remarks

A successful NSS must have a cadre of professionals with specific training in epidemiology. Currently, epidemiological resources are available at the state, area, regional, and national levels, but the efforts of these entities are not well coordinated. APHIS-VS resources play various roles in current surveillance systems, and the lack of current coordination has led to a "disconnect" among the CEAH, field APHIS-VS, and National Animal Health Programs staff. This disconnect was a common theme noted in site visit interviews. It is expected that all of these epidemiologic resources throughout APHIS-VS and outside APHIS-VS will contribute to the NSS, which will require a shared vision of the NSS and coordination in activities.

Effective coordination of these resources within and outside APHIS-VS could be facilitated through the following:

- Efforts of the national surveillance director to provide leadership to the vision of the NSS to participants and stakeholders;
- Designation of CEAH to serve in the epidemiologic leadership role within APHIS-VS;
- Integration of state resources, including state-designated epidemiologists, into the overall surveillance plan. As the goals of the NSS are developed and refined, all available resources must be utilized to maximize the effectiveness of the final product. State and university resources could be leveraged through funded cooperative agreements (where appropriate) to optimize capabilities and, ultimately, the strength of the NSS;
- Continual communication among NSS participants regarding NSS roles, expectations and activities; and
- Plans to train and re-train individuals to expand and maintain the epidemiological expertise needed.

PRINCIPLE 1i
Applied research is essential to the development and maintenance of the NSS.

Recommendation

21. Meet applied research and development needs for the scientifically based NSS.

Remarks

Currently, APHIS-VS does not have research authority or a formal applied research program. Wildlife Services within the APHIS has research authority. NVSL and CVB provide limited diagnostic methods development. CEAH provides epidemiologic research support to APHIS-VS in areas including animal health monitoring and risk assessment. Neither of these activities, however, is considered a research activity.

Agricultural Research Service (ARS) programs are not adequately aligned with nor are they meeting APHIS-VS' short-term and long-term applied research needs. ARS does not have the epidemiologic critical mass to provide for the epidemiologic research needs. From interviews conducted during the review process, it was stated that it is difficult for ARS to respond quickly to APHIS-VS' short-term needs. There is not a formal process for APHIS-VS to communicate long-term and short-term research needs to ARS or other research groups.

The lack of research authority restricts APHIS-VS personnel in their classification and salary ranges, which results in losses of qualified staff to other agencies and institutions with research authority. This is especially critical for scientists at the NVSL, CVB, and CEAH. Development of credibility for the leadership roles played by NVSL, CVB, and CEAH in the NSS both within APHIS-VS and by strategic partners requires demonstration of scientific rigor in program activities. Without APHIS-VS recognition of NVSL, CVB, and CEAH scientists as researchers, these individuals cannot easily demonstrate the rigor of their scientific programs.

APHIS-VS needs a research and development role in order to have the flexibility and responsiveness needed for the NSS as well as to maintain a state-of-the-art technical reputation. This necessitates development and retention of research scientists within critical areas within APHIS-VS.

A research and development program might, in part, be developed through encouragement of active partnership and collaboration with existing applied research agencies and organizations in projects directly related to the surveillance mission of the NSS. Encouragement of and resources for staff participation in scientific and industry forums, scientific forums, and peer-reviewed publication should be provided for all levels of scientific/technical staff.

Exclusion Committee Report

Mission

The mission of the committee was to review all facets of current efforts to prevent the incursion of foreign animal diseases into the U.S. Although this task can be captured in a single sentence, in reality it encompasses a very broad array of federal agencies, state agencies, and commodities along with their policies and practices. Effective exclusion activities are a continuum from the gathering of international animal health information and trade negotiations through the promulgation of import regulations, review of import requests, and the physical inspection activities at ports of entry; to domestic surveillance and monitoring systems which include field and laboratory infrastructure designed to detect the incursion of foreign animal disease. The foundations of successful exclusion activities include:

- The use of an overlapping system of defense, the sum effect of which is greater than that of the individual parts;
- Accurate and timely information on the status of animal disease in foreign countries, and on the types, quantities, country of origin, and destination of animals and animal products entering the U.S.;
- Adequate levels of fully trained staff to conduct risk analyses, inspection, and interdiction activities; with the supporting infrastructure, including physical facilities and information systems, to ensure their success; and
- Feedback mechanisms to constantly validate and measure the effectiveness of these efforts and provide information upon which to base policy formulation, resource allocation, and operational decisions.

BORDER CROSSINGS: BY THE NUMBERS

According to the U.S. Customs Service's FY 2000 Accountability Report, 489 million passengers and pedestrians crossed U.S. borders in FY 2000 as did almost 140 million conveyances (e.g., trucks, buses, ships, aircraft, and cars). This volume is expected to double by 2009. International mail volume in 2000 grew 6.7%. International priority airmail more than doubled from its 1999 level—international express mail grew by 7.5%. Approximately 38,000 animals are imported daily. In addition, outbreaks of highly contagious animal diseases have risen dramatically recently, for example, the incursion of foot-and-mouth disease into many countries that had been free of the disease for years.

Notes on Findings

In general, the committee observed committed, highly professional staff doing their best to confront an overwhelming and rapidly growing volume of passengers, cargo, mail, and animals. There were pockets of innovation found in almost every facility, but no process for deployment of those innovations throughout the agency or reward for innovation. The single greatest testament to the effectiveness of the current system of exclusion activities is the fact that there has not been a major outbreak of foreign animal disease (FAD) in the U.S. in many years. Foot-and-mouth disease (FMD), possibly one of most devastating of foreign animal diseases, has been kept out of the U.S. since the last outbreak in 1929. Incursions of lesser gravity, such as screwworm and velogenic Newcastle disease, have been introduced more recently, but they were detected and eliminated. The response of the U.S.

Department of Agriculture (USDA) to the threat of the introduction of bovine spongiform encephalopathy (BSE), popularly called mad cow disease, may serve as a model for the direction needed for exclusion activities in general. With BSE, a risk assessment was performed as the basis for deciding what the level of risk was for either introduction of the disease or natural occurrence in the U.S. Counter strategies were put in place based on the findings, and the risk assessment was later revisited to see if alterations to the initial strategies were warranted and if the conclusions of the initial assessment were still valid.

These principles must be addressed in order to improve efforts at excluding foreign animal diseases from the U.S.; this, as part of the overall safeguarding mission of the Animal and Plant Health Inspection Service (APHIS). Growth in international trade has pushed the existing system to the limits of its capabilities, which will require that system to evolve if it is to maintain its record of success.

These principles describe overarching issues, meant as general guidelines for improving the exclusion efforts of the USDA. The order of the principles do not reflect priorities; all areas should be addressed with urgency.

Methods and Meetings

In conducting this review, committee members conducted telephone interviews and biweekly teleconferences to interview, plan, and report. In addition, members visited several locations, among them major ports of entry into the U.S., including:

- Miami, Florida (air and maritime passenger, cargo, and garbage disposal operations, international mail operations, and animal/bird quarantine facilities);
- John F. Kennedy Airport, New York (animal import, air cargo operations, and international mail operations);
- Newburgh, New York (animal import quarantine facility);
- Port Elizabeth, New Jersey (maritime cargo operations, international mail operations);
- Newark, New Jersey, airport (air passenger, air cargo);
- Santa Theresa, New Mexico (border crossing checkpoint and animal, cargo and passenger inspection operations);
- Pembina, North Dakota (border crossing checkpoint and animal, cargo and passenger inspection operations);
- Los Angeles, California (air passenger, cargo, and garbage disposal operations and animal/bird import quarantine facilities);
- Long Beach, California (maritime cargo operations);
- Riverdale, Maryland (Veterinary Services [VS], International Services [IS], and Plant Protection and Quarantine [PPQ] staff);
- Washington, D.C. (Foreign Agricultural Services [FAS], Food Safety and Inspection Service [FSIS] and U.S. Customs staff); and
- Ames, Iowa, USDA Center for Veterinary Biologics (CVB).

Detailed summaries of findings were prepared—identifying information about individuals was redacted. In addition, the committee notes that the work, "Pathway Assessment of Foot-and-Mouth Disease (FMD) Risk to the United States: An Evaluation in Response to International FMD Outbreaks in 2001," provides the best pathway analysis and lists highest risk ports of entry, based upon 2000 data. Additionally, results of port reviews carried out by PPQ and veterinary medical officers (VMOs) in Riverdale, Maryland, during 2000 are also presented in the summaries. (These summaries have been provided as file copies for use by the National Association of State Departments of Agriculture [NASDA].) Recommendations are based upon these summaries.

NOTES ON THE STAKEHOLDER SURVEY

A stakeholder survey was designed and conducted to analyze the perceived levels of risk of different areas of animal and animal product import and exclusion activities. Included in the survey were representatives from commodity, trade and other industry groups as well as state agencies charged with safeguarding animal health. Graphic detail and the questionnaire used to obtain this assessment are presented in Appendices IX and X.

SUMMARY OF SURVEY RESULTS	
Stakeholders Response to Animal Health Safeguarding Survey	Stakeholders responded to the "Safeguarding Review of USDA: Veterinary Services Stake-holder's Survey" and to "in person" interviews to express their strong concerns regarding the threat to American agriculture from the potential introduction of foreign animal diseases. • Industry, retailers, and foodservice companies were nearly unanimous in their concern for the safety of animal health in the United States. Nearly 80% felt that the threat to U.S. animal agriculture was increasing and a similar percentage felt that the U.S. was extremely vulnerable to the introduction of foreign animal diseases. • While most groups responded that there were numerous points of animal disease introduction, they felt that the highest risks were from human travel and animal product imports along with the importation of exotic birds. • While all of the groups surveyed felt the threat to animal health was real and increasing, they similarly felt that APHIS-VS has done a remarkable job in preventing the introduction of foreign diseases to date. When asked to rate the importance of APHIS activities in preventing introduction of foreign animal diseases in the U.S., industry groups rated the importance and effectiveness of APHIS activities nearly identically. • Nearly every sector questioned regarding "Safeguarding Animal Health" felt that as travel and trade growth stretches the capacity of APHIS to maintain its systems, the capacity to prevent introduction of FADs greatly diminishes. • Retailer and food processors and those groups close to the consuming public believe that it is absolutely essential to maintain a strong APHIS. "Food safety concerns demand that the U.S. maintain a regulatory infrastructure that is effective in prevention and quick to respond to any disease threat." Consumer confidence in the food and animal safety regulatory system is essential and should never be taken for granted. • In addition to the traditional pathways for the introduction of foreign animal diseases, a large number of industry groups worried about bioterrorism and its potential effects on domestic agriculture and herd health.
State Agencies Response to Animal Health Safeguarding Survey	State agencies charged with safeguarding animal health overwhelmingly rate the threat of FAD introduction to the U.S. as high, and believe the threat is increasing. Slightly over 81% of the agencies responding to the survey indicated the threat to animal health from FADs is increasing, and 78% believe that the U.S. is "vulnerable" to "extremely vulnerable" to significant disease threat. • States rate human travel, animal product imports, livestock, poultry, and exotic birds as the likely sources of potential pathways for introduction of FADs. • Agriculture agencies were nearly unanimous in believing an accurate and reliable identification system for post-entry tracking of imported animals was extremely important to manage disease threats. • States expressed overall satisfaction with APHIS-VS customer service and rated the agency as very successful in excluding foreign animal diseases from the U.S. States expressed concern over shrinking staff in Ames and Plum Island laboratories, as well as the inability to modernize these important facilities. States also recognized the need to increase overall APHIS-VS staffing levels. • States believe lack of enforcement at all levels places animal industries at risk. Some states also expressed concern that that work on trade facilitation within APHIS-VS was drawing necessary resources from disease prevention.

PRINCIPLE 2a

In order to achieve effective exclusion, the U.S. must adopt a unified approach that balances plant and animal issues, and restores coherence to the fractured system now in place.

Synergy—Current exclusion efforts at ports are artificially fractured between plant and animal issues. Effective exclusion requires a unified approach that gives both of these components adequate weight.

At one time there were separate Animal and Plant Health Inspection Service's (APHIS) Veterinary Services (VS) and Plant and Pest Quarantine (PPQ) inspection teams at ports. Then an effort was made to unify these inspection activities and APHIS-VS inspectors became part of PPQ. Over the years, the original APHIS-VS inspectors were replaced with new hires by PPQ and the emphasis on background for those new hires was and is plant pest and disease knowledge/training. Current PPQ inspectors receive only a small amount of formal animal product training during their New Officer Training program and rarely any additional animal disease/animal product training after that.

Agricultural exclusion inspection activities at the ports are conducted similarly regardless of whether it is plant products or animal products that are the focus of the inspection. The expertise in the inspection force should be balanced between plant and animal products and diseases. The time has come to refine the previous attempted merger of inspection and interdiction efforts with the formation of a truly integrated Agricultural Inspection and Quarantine (AIQ) unit. The AIQ should be responsible for inspection, interdiction and quarantine efforts at all ports and for all agricultural commodities, plant or animal related. Importantly, AIQ should contain all of the professional expertise, plant and animal, necessary to competently carry out its mission.

Recommendation	*Remarks*
22. Form a new, integrated Agricultural Inspection and Quarantine (AIQ) unit of both animal and plant professionals.	Form a new, integrated AIQ unit comprised of both animal and plant professionals. This will require a mix of current PPQ personnel, veterinary medical officers (VMOs), animal health technicians (AHTs), etc., to ensure competent coverage of all agricultural commodities. Additional VMOs should be established within AIQ with defined responsibilities at the ports. Steps should be taken to ensure their interaction and liaison with APHIS-VS.
Recommendation	*Remarks*
23. Establish a permanent Quality Assurance (QA) unit with the expertise to validate the outcomes of inspection and interdiction efforts; and provide leadership in continuous quality improvement.	Establish a permanent QA unit with the expertise to validate the outcomes of inspection and interdiction efforts and provide leadership in continuous quality improvement. This unit should oversee one or more quality improvement teams with members from APHIS-VS, AIQ, Immigration and Naturalization Service (INS), U.S. Customs Service, state agencies charged with safeguarding animal health, and industry to conduct at least biannual reviews of each port's operations and provide recommendations on risk mitigation and interagency cooperation.
Recommendation	*Remarks*
24. Whenever possible, co-locate AIQ port offices with all other federal inspection services (e.g., U.S. Customs, and the Immigration and Naturalization Service).	Supervisors from all of the federal inspection services agencies at a port should meet routinely (not less than monthly) to discuss issues of mutual concern and work out any operational issues that may arise. Where appropriate, consideration should be given to co-location of parallel state inspection services.

Recommendation	*Remarks*
25. Raise the priority of postal inspection to the same level as that of passenger baggage, cargo, and animal quarantine.	Recognize AIQ postal inspection work as an integral and critical control point for exclusion and it should be raised to the same level as passenger baggage, cargo inspection, and animal quarantine activities. Internet commerce has increased risk through postal shipments enormously.
Recommendation	*Remarks*
26. Fully fund and support the APHIS Smuggling Interdiction and Trade Compliance (SITC) unit.	Fully fund and support SITC with the resources and authority necessary for success and expansion. The new SITC unit shows great promise to become a very effective post-entry critical control point.
Recommendation	*Remarks*
27. Include area veterinarians in charge (AVICs) and state veterinarians in exclusion activities conducted at the state level.	Direct APHIS to include AVICs and state veterinarians in AIQ exclusion activities at the state level as standard operating procedure.

Principle 2b
In order to prevent the incursion of foreign animal diseases into the U.S., the trade environment for animals and animal products must include a flexible, fast-responding, integrated effort with the participation of federal and state agencies, and industry.

The current and future trade environment for animals and animal products requires a flexible, quick-response, integrated effort including federal agencies, state agencies, and industry to prevent the incursion of foreign animal diseases into the U.S. The U.S. needs to improve understanding of the true animal health status of many foreign countries. Within USDA, this will require better coordination of exclusion activities within and between APHIS-VS, the Center for Veterinary Biologics (CVB), International Services (IS), PPQ, and the Food Safety and Inspection Service (FSIS). The Foreign Agricultural Service (FAS) also has potential to be a valuable source of information on the animal disease status of foreign countries. Outside USDA, the information necessary to conduct effective exclusion activities is highly dependent upon interactions with the other federal inspection service agencies, particularly Customs, and could benefit greatly from greater interaction with state agencies as well. The relationship between the U.S. Customs Service and USDA is critical, as Customs is the major portal for much of the information on animal products in cargo imported into the U.S. as well as a critical control point for interdiction of contraband in passenger baggage at airports. State agencies are being used on a limited basis now to augment federal exclusion efforts. Within APHIS-VS and CVB, there are many very dedicated employees; however, steps need to be taken to enable improved information distribution. Employees appear to be hampered by a lack of rapport between APHIS-VS Riverdale staff and field staff and uneven information distribution. The implementation of e-mail, cell phones, and other means of rapid communication have helped and more should be done to facilitate transition to a virtual organization with infinite lines of communication between all levels.

Recommendation	*Remarks*
28. Animal Health Program headquarters should — make more frequent staff visits to the field; or — relocate staff closer to front line operations (preferably to the state level; secondarily, to regional offices).	Direct APHIS-VS Riverdale staff to make more frequent visits to the field, or relocate staff closer to the front line operations, at least to the regional offices but preferably to the state level. Modern communications technologies would allow this change to occur without loss of contact/coordination.
Recommendation	*Remarks*
29. Establish routine dissemination to both managers and field staff in all programs of information on international animal health status, import permits, and port activities.	Address the artificial divide between domestic programs and exclusion activities by establishing routine dissemination of information on international animal health status, import permits and port activities to both managers and field staff in all programs. For example, currently available information technology would facilitate the automatic dissemination of import permit information to AVIC's and state veterinarians in the state of destination for the imported commodity. In addition, this information should be archived and readily accessible to staff via an intranet or the Internet.
Recommendation	*Remarks*
30. Form a new Animal Health Information Coordination and Analysis (AHICA) unit.	Form a new AHICA unit to address the problem of streams of information within USDA being disjointed and uncoordinated. (Further clarification of AHICA can be found in recommendations under Principles 2g.)
Recommendation	*Remarks*
31. Drastically expand USDA information on international animal health status to include sources such as the Internet, scientific publications, market reports, and federal agencies such as the National Security Administration, the Foreign Agricultural Service (FAS), and the U.S. Department of State.	Direct USDA to drastically expand its sources of information on international animal health status through review of Internet content, scientific publications, market reports, etc. Existing expertise within other federal agencies such as the National Security Administration, FAS, the U.S. State Department, etc., should be contracted to fulfill this need.
Recommendation	*Remarks*
32. Establish e-mail discussion lists to help unify operational procedures at ports for AIQ.	Establish e-mail discussion lists to facilitate harmonization of operational procedures at ports for AIQ port directors and staff and periodic (at least annual) face-to-face meetings of all port directors.
Recommendation	*Remarks*
33. Provide technical support 24 hours a day, 7 days a week for animals and animal products, so that all port arrival times are covered.	Provide technical support regarding animals and animal products 24 hours a day, 7 days a week to correspond to the arrival at ports of these commodities. This technical support will require the level of training/expertise of a veterinary medical officer position. The most efficacious placement of technical support personnel is locally, either at the port or at least within the same time zone as the port.

Recommendation

34. Promote cooperation between USDA and the Customs Service to revise the passenger and international mail declaration form to more effectively identify the need for in-depth inspections of arrivals.

Remarks

Direct USDA to work with the Customs Service to revise the Customs Declaration form used by passengers and on international mail with the aim of increasing the usefulness of that form in identifying the need for more in-depth inspection of arrivals. The electronic declaration form used by Mexico should be used as a model for this revision.

Recommendation

35. Provide input into the development of the Customs Service's new Automated Commercial Environment (ACE) to ensure it provides the level of information necessary to facilitate exclusion activities.

Remarks

Direct USDA to provide input into the development of the Customs Service's new Automated Commercial Environment (ACE) to ensure it provides the level of information necessary to facilitate exclusion activities. The use of the Automated Manifest function of the ACE should be made mandatory for all import brokers.

Recommendation

36. Make the Treasury Enforcement Communications System (TECS) accessible and subject to mandatory update; its usage to identify high-risk targets should be required of USDA personnel at all ports.

Remarks

Make the Treasury Enforcement Communications System (TECS) accessible and subject to update and regular use by USDA personnel at all ports to identify high risk targets.

Recommendation

37. Direct Centers for Veterinary Biologics (CVB) to provide improved and expedited responses to port authorities, brokers, and similarly situated parties.

Remarks

Consider the addition of a hotline or clearinghouse.

Principle 2c
APHIS exclusion efforts must encourage and reward innovation; and must be decentralized so that every level has appropriate authority and responsibility for its work.

Business Practices—The command and control structure applied to the exclusion effort must be decentralized so that each level has both the authority and responsibility necessary to be efficient and effective. The corporate culture of APHIS should encourage and reward innovation.

APHIS-VS has made significant strides in its business practices with the advent of negotiated rulemaking, regionalization and risk analysis. It has adapted to the exigencies of a shrinking budget and workforce with few breaks in the exclusion barrier. There is evidence however, that the current system will not bear up to the expected growth in commerce in the next few years.

The trend in corporate business practices over the last decade has been decentralization, reduced layers of management, and empowerment of front line staff. Government has focused on streamlining by reducing layers of management and has talked of empowerment of staff, but often has not decentralized authority. APHIS-VS has reduced the number of regional offices from four to

two making this level of supervision and authority more remote from the field. In current practice, virtually all decisions on out-of-the-ordinary situations that arise must be referred to lead APHIS-VS personnel in Riverdale or at least a regional office before action can be taken at the port level. The command and control structure applied to the exclusion effort must be decentralized so that each level has both the authority and responsibility necessary to be efficient, effective and timely. The corporate culture of APHIS should encourage and reward innovation.

Recommendation

38. Airport Procedures:
— Model procedures after those in use at the international passenger arrival checkpoint at the Los Angeles International Airport (LAX).[6] Highlights include expanded inspection authority and the use of amnesty bins and signage in multiple languages that list penalties for violation.
— Employ advanced x-ray equipment and/or canine teams along baggage conveyor belts, and employ teams of two or more inspectors to expand, speed up and improve baggage scanning.

Remarks

Emulate the principle of the international passenger arrival flow checkpoint arrangement found at the Los Angeles Airport[6] to all other airports so that APHIS personnel review every passenger declaration form and have the opportunity to interview each passenger.

Duplicate the "amnesty bins" and signage in multiple languages outlining penalties found at LAX to encourage the voluntary disposal of contraband by arriving international passengers. In addition, multilingual posters indicating the use of canine teams to detect contraband should be prominently placed to discourage the introduction of contraband.

Reconfigure the inspection of international passenger baggage at airports by placing advanced technology x-ray equipment and/or canine teams along the conveyor belts that carry the bags; this so AIQ personnel can scan all arriving baggage before it is claimed by passengers. Suspect bags requiring visual inspection should be tagged in a tamper-proof manner and/or diverted to a separate area for baggage claim.

Establish teams of two or more inspectors at ports of entry to conduct x-ray inspections; this, so that whenever an inspector identifies a suspicious bag or parcel during the x-ray scan, the second inspector can continue subsequent x-ray work while the identifying inspector can conduct the followup visual inspection of the contents to better correlate animal or plant products with their appearance in the x-ray scan.

Recommendation

39. Increase canine inspection teams at passenger baggage, cargo, and mail inspection facilities so that teams are available for arrivals occurring at any time.

Remarks

Increase the number of canine inspection teams at passenger baggage, cargo and mail inspection facilities as rapidly as possible so that canine teams are available anytime products/parcels are arriving. The breeds of dogs used in inspections should be expanded to include larger working breeds more suitable for cargo inspection facilities.

Recommendation

40. Mount a public information campaign on penalties for illegal importation, and methods of inspection.

Remarks

Mount a public information campaign to inform passengers, import brokers, and mail patrons, both in the U.S. and even more importantly in foreign countries, of the restrictions on product imports, the penalties for illegal importation, and the use of x-rays, canine teams, and other technology to examine incoming baggage, cargo, and parcels. This type of communication should be provided with Customs declarations forms.

Recommendation

41. Employ the management practices of the Newburgh, New York, AIQ facility for all animal facilities.

42. Ensure that private contractors engaged in off-loading animals or cleaning and disinfecting conveyances at ports employ biosecurity practices at least equal to those of APHIS-VS.

Remarks

Subject the biosecurity standards and procedures for the operation of animal and bird import quarantine facilities to review by a team of experts, including representatives from academia, industry, and state government. The goals of the review would be to harmonize, standardize, and centralize the management and funding of all animal and bird quarantine facilities.

Hold private animal or bird quarantine facilities to standards that are at least equal to those for government facilities.

Direct private contractors that help off-load animals or clean and disinfect conveyances at ports to employ biosecurity practices at least equal to those of APHIS-VS.

Recommendation

43. Ensure that birds, animals, and animal products that do not fully meet the import requirements for entry into the U.S. are refused entry.

Remarks

Refuse entry or return to the country of origin as soon as possible any animals, birds, or animal products that do not fully meet the critical disease prevention requirements for entry into the U.S. Such animals and products should not be allowed to stay on U.S. soil pending resolution of discrepancies, and the importer should be fined to the full extent of the law.

Recommendation

44. Establish a formal connection between APHIS-VS and International Services (IS) to ensure that countries have the necessary information to meet U.S. import policies.

Remarks

Establish a formalized process for verification between APHIS-VS and IS that countries are meeting those import policies.

Recommendation

45. Empower port directors to resolve individual problems with imports.

Remarks

Delegate authority and responsibility to port directors to make determinations on a case-by-case basis to resolve problems with imports.

Recommendation

46. Ensure that APHIS-VS veterinary medical officers (VMOs) at animal and bird import quarantine facilities have appropriate clinical training and skills. Minimize use of private veterinarians within quarantine facilities, and ensure strict enforcement of biosecurity measures when the employment of such individuals occurs.

Remarks

Ensure adequate and appropriate clinical training and skills for APHIS-VS VMOs at animal and bird import quarantine facilities.

Recommendation

47. Expand risk assessment to be a standard part of all exclusion operations.

Remarks

Expand qualitative and quantitative risk assessment beyond the scope of regionalization requests to become a standard part of all exclusion operations, from resource allocation to operational decisions. Regardless of scale or extent, all risk assessments must be periodically reviewed and validated to ensure that assumptions, risk factors, and outcomes have not changed significantly.

Recommendation

48. Increase assistance in disease diagnostics, monitoring, surveillance, and control/eradication programs to foreign countries with animal disease problems that threaten the U.S.

Remarks

Establish a plank in the overlapping system of exclusion defenses to increase assistance in disease diagnostics, monitoring, and surveillance systems, and control/eradication programs to foreign countries with animal disease problems that threaten the U.S. Acceptance of such assistance and meeting measurable goals of improvement in these areas of animal disease control should be incorporated into bilateral trade agreements.

Recommendation

49. Incorporate the tracking and inspection of cruise ships, private boats, and aircraft arriving from foreign countries into the work functions of APHIS, in coordination with other federal inspection services.

50. Enforce the assessment of civil penalties provided by law for passengers, cargo, and mail.

51. Revise and improve biosecurity procedures for other than slaughter livestock at land border crossings. Permit release of live animals, regardless of species, only after inspection by a VMO.

52. Direct APHIS-VS to pursue an equivalency agreement with Canada so that cattle import conveyances are inspected and sealed at the point of origin, and not unloaded at the U.S. border. Continue pursuit of a North American biosecurity plan in partnership with Canada and Mexico; this in order to ensure the equivalency of exclusion efforts in all three countries.

Remarks

Encourage the continued pursuit of a North American biosecurity plan (North American Animal Health Committee) in partnership with Canada and Mexico to ensure the equivalency of exclusion efforts in all three countries. Such a unified plan would enhance the freedom of movement of agricultural products between the three countries without compromising plant or animal health.

Recommendation

53. Establish an objective, risk-based process to periodically review and update the list of import-limiting animal diseases.

54. Incorporate a requirement for periodic review, audit enforcement, and updating into compliance agreements for the regulation of international garbage.

55. Develop and maintain a standard manual for mail inspection that includes pictures of prohibited products.

Remarks

Develop and maintain a standard manual for mail inspection. The manual should include a catalog of visual documentation of examples of prohibited products. Electronic media (CD-ROM) is suggested as the best venue for this manual. Inspectors at all port facilities should have access to digital cameras to document findings and to provide additional pictures for the training manual catalogs.

Recommendation

56. Provide foreign language interpretation assistance for inspectors at all port facilities.

57. Complete preparation of the Animal Products Manual (APM) in electronic format.

Principle 2d
In order to be an effective deterrent to the incursion of foreign animal diseases, APHIS must hold appropriate authority and conduct enforcement activities.

Authority—APHIS must have an adequate level of authority and enforcement activities to be an effective deterrent to the movement of contraband and the introduction of foreign animal diseases. Over the years, the activities and the scope of APHIS responsibilities have changed and the statutory authority needed to effectively carry out those responsibilities has not kept pace. The Animal Health Protection Act currently under consideration by Congress is an attempt to streamline and harmonize those responsibilities and

authorities. This legislation will establish consistency with the Plant Protection Act in the levels of civil penalties for violations of import restrictions. Another area that needs to be addressed is the array of changes that have occurred as a result of the expansion of international trade and movement of animals and animal products. The result is that APHIS-VS, CVB, and PPQ staff more and more frequently find themselves involved in making determinations in situations that were not foreseen by the crafters of legislation or regulation.

Recommendation

58. Encourage across-the-board USDA support for passage of the new Animal Health Protection Act, which should include strengthened civil penalties for illegally importing animals, animal products, or veterinary biologics; and the granting of subpoena and seizure power equal to existing authority for plants and plant products to all new port structures for animals and animal products.

Remarks

Strongly support passage of the new Animal Health Protection Act. Civil penalties for illegally importing animals, animal products or veterinary biologics need to be raised substantially to levels that provide adequate deterrence to repeat offenses. All levels of the USDA must give full support for changing and imposition of penalties. Any new port structure should be given subpoena and seizure authority for animals and animal products such as currently exits for plants or plant products.

Recommendation

59. Swiftly review and update the Swine Health Protection Act, drawing input from all stakeholders.

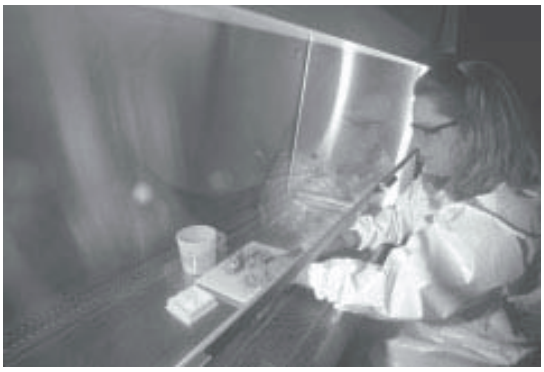
Remarks

Particular attention should be paid to pathways related to garbage feeding in swine; as long as garbage feeding is practiced, the swine industry and the veterinary profession need to ensure continued focus on compliance with biosecurity and sanitation measures, record keeping, enabling quick tracebacks if necessary, and open lines of communication.

Recommendation

60. Extend USDA authority to inspect private boats and aircraft arriving from foreign countries.

61. Support inclusion of CVB in future legislative authority, such as that of the Drug Export Reform Enhancement Act (DEREA), to address risks posed to U.S. livestock through export-only production of vaccines.



62. Support greater authority for CVB for testing of illegally imported biologics.

Remarks

Current law requires proof that a product is dangerous within 20 days. CVB really needs 60-90 days to evaluate biologics for importation.

Recommendation	*Remarks*
63. Secure improved, electronic, foolproof permitting for approvals of imported biologic agents and vaccines.	Electronic permitting, terminology, continuing education, etc., should be such that ambiguity and misinformation between agencies are minimized. Exotic pathogens can come in as biological materials coded under the "reagents" category.
Recommendation	***Remarks***
64. Provide resources to permit CVB to secure state-of-the-art technologies for timely response to animal health surveillance and enforcement activities.	Provide CVB with sufficient resources to be more abreast of new categories of products; for example, new plant-based biologics, cancer immunotherapy products, and recombinant organisms that are contaminated with or represent de novo disease risks.

Principle 2e
Staffing levels, qualifications, training, and assignment must be based on validated pathway risk analyses, and must provide for periodic monitoring and revision of those risk analyses.

Human Resources—Human resources are the core of all exclusion activities and, like most government agencies, USDA has gone through a prolonged period of downsizing that has substantially reduced staffing despite the rapid and continuing increase in workload. A review by the General Accounting Office (GAO) in 1997 found that "APHIS' efforts to address its workload problems are hampered by inadequate information for determining how to best deploy its inspectors. In particular, its current staffing models—mathematical formulas used to help determine inspection staffing needs—are not based on reliable information and do not incorporate risk assessment factors similar to those being developed in its results monitoring program. Consequently, APHIS has little assurance that it is deploying its limited inspection resources at the nation's ports of entry that are most vulnerable to the introduction of pests and diseases." The weaknesses of these staffing models could be summarized as 1) relying on inaccurate inspection workload data, a problem with the WADS (Workload Accomplishment Data System) program, 2) the lack of inclusion of risk assessment information in these models, and 3) application of the staffing models on a local or regional, but not national, basis. This committee found these GAO findings still valid. Staffing levels, training, and assignment must be based on validated pathway risk analyses and provide for periodic monitoring and revision of those risk analyses and staffing models.

The tendency in the past within USDA has been to try to have all or most of the expertise necessary to fulfill its missions on staff within the agency. The reduction in staff levels over the years, coupled with the current and expected numbers of retirements among senior staff, has resulted in an inability to maintain the required levels of expertise internally. Other agencies have addressed this same issue by establishing tighter partnerships with state counterparts, academia, and industry as needed.

Human beings are natural innovators and the committee found that APHIS staff had frequently developed novel ways of improving their job functions. Unfortunately, it was rare that those innovations were either rewarded, or that they were disseminated at other than the local level for the benefit of the entire organization.

Recommendation	*Remarks*
65. Direct APHIS to **— Immediately assess staffing needs; this in order to address significant losses in senior personnel, and the expected loss of more;** **— Review and adjust compensation disparities, grade levels, and career pathway opportunities;**	Direct APHIS to immediately conduct a staffing needs assessment to address the significant losses in senior personnel that have occurred over the past 8-10 years and the expected loss of more senior personnel. This is an imperative if the agency is to meet projected needs for the next 10 years. The needs assessment should first define the skills that will be needed now and in the immediate future. Review and adjust compensation disparities, grade levels and career pathway opportunities (e.g., professional tracks). Staffing levels relative to workload demands

— Establish partnerships with state officials, academics, and industry representatives in order to augment and complement its own staffing resources; and
— Provide more staffing for the Center for Veterinary Biologics-Inspection and Compliance (CVB-IC), the Center for Veterinary Biologics-Licensing & Policy Development (CVB-LPD), and the Center for Veterinary Biologics-Laboratory (CVB-L), all of which are currently understaffed for their mandate.

should be reviewed for all exclusion activities within APHIS. Current levels are insufficient to meet workload demands in most areas and result in undue overtime demands. This review should include recommendations for re-engineering workflow processes and significant augmentation of staff capabilities with technology resources (information systems) employing intelligent automation of processes.

Establish incentives and rewards for staff acquiring multilingual skills.
Streamline hiring practices to reduce the amount of time it takes to fill a position and to ensure the standards for positions are kept high.

Provide additional incentives or salary adjustments to compete with other public and private employers and to attract and keep qualified staff, especially in areas with a high cost of living.

Avoid keeping positions vacant for extended periods of time. There should be a contingency or succession plan in place for critical management positions should they become vacant.

Direct APHIS to establish partnerships with state officials, academics, and industry representatives to augment and complement its own staffing resources. Previously successful models such as Talmadge-Aiken arrangements, private veterinary accreditation, and the Food and Drug Administrations deputizing of state officials should be emulated.

Confront the urgent staffing needs of CVB-Inspection and Compliance (IC), CVB-Licensing and Policy Development (LPD), and CVB-Laboratory. All are understaffed for their mandate. As a consequence, they are not able to take on additional areas of activity. An example of such urgent need is with Internet products.

Recommendation
66. Direct AIQ to
— Develop for and deliver to its staff regular continuing education programs on animal diseases and animal product issues; and
— Arrange for its port directors and quarantine facility directors *to meet* annually to discuss mutual problems, recommend changes in procedures and policies, and harmonize operations.

Remarks
Direct IQ port directors and quarantine facility directors from all ports to meet at least annually to discuss mutual problems, recommend changes in procedures and policies and harmonize operations. For example, a process should be established to actively seek out and reward innovations that improve exclusion activities and ensure that those innovations are adopted nationwide where feasible.

Recommendation
67. Ensure that international mail facilities are staffed whenever parcels are being processed.

68. Enhance Foreign Animal Disease Diagnostic Laboratory (FADDL) training programs, including continuing education and accreditation, to adequately protect animal health.

69. Direct APHIS to revise and implement a private veterinarian accreditation program with sufficient funding to be free of user's fees, and to establish foreign animal disease (FAD) continuing education as a requirement of the program.

Principle 2f
A combination of user's fees and line item appropriations must be established to adequately fund all exclusion activities and their attendant support functions.

Funding—As with staffing, funding levels for exclusion activities have not kept pace with rising demands. In fact, funding levels have largely declined for these activities. In order to augment current exclusion efforts and build upon them to meet expected needs, new funding will be required to expand both the capacity and the capabilities of the current system. A combination of user's fees and line item appropriations must be established to adequately fund all exclusion activities and the support functions for those activities. The agency is urged to determine the estimated cost of appropriate additional staffing and other non-personnel support to meet the nation's exclusion needs.

Recommendation

70. Direct APHIS to seek the additional funding needed to support the increases in staff, staff training, salary adjustments, support infrastructure and facilities to adequately execute its mission. ***(See also Exclusion Committee Report, Principle 2e.)***

71. Seek additional funding to ensure that the new quarantine facilities fully meet standards for biosecurity, and will have the operational capacity needed for the foreseeable future.

72. Increase contingency funding for APHIS so it can better deal with emergencies.

Remarks

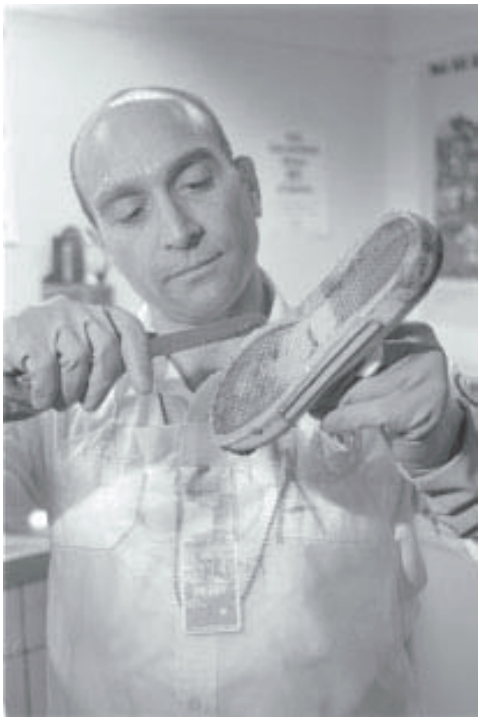
Secure funding to end reliance on emergency funding (Commodity Credit Corporation) to address foreign animal disease incursion prevention and response activities. The current arrangement is not conducive to maintaining high quality programs in those areas. Line item appropriations for these activities should be increased. In addition, contingency funding for APHIS (currently $4 million) should be increased to deal with unforeseen emergencies.

Recommendation

73. Seek funding to address the diagnostic and applied research needs for FADD activities, including the establishment and maintenance of Biosafety Level (BSL) 3-AG and BSL 4 laboratory facilities.

74. Direct funding towards establishing the expertise and physical capabilities at state diagnostic laboratories to perform diagnostic testing for FAD in the event of a confirmed outbreak.

75. Maintain USDA-APHIS-VS's National Center for Import and Export (NCIE), APHIS-VS, and CVB jurisdiction over permits for importation and movement of zoonotic pathogens and all biologics that may be produced in any animal tissues or fluids.



Principle 2g

APHIS can and should increase effectiveness of staffing by using better information systems and inspection equipment; new technologies must be accompanied by re-engineered workflow processes.

Technology—APHIS can tremendously increase the effectiveness of any level of staffing through the application of currently available technology in the areas of information systems and inspection equipment. New technologies must not be applied however, without re-engineering workflow processes.

Information is the cornerstone for exclusion activities. Information on the disease status of an exporting country, the individual identification of an animal and its movements, or the origin and makeup of imported products and the ability to efficiently review, classify and disperse such information are capabilities that APHIS currently lacks in great measure. These capabilities, if fully and appropriately developed, would significantly offset the lack of staff currently afflicting APHIS and would be the most effective set of tools to cope with the inevitable continued rise in workload facing the agency. To a significant degree, APHIS does not have direct control over critical portions of this information flow because the U.S. Customs Service has statutory preeminence as the gatekeeper to international commerce. However, Customs is in the process of revamping its Automated Commercial Environment (ACE) system, which is the main portal for capturing information on imported cargo. This provides an opportunity for APHIS to make its requirements for the ACE known and incorporated.

Within APHIS there is tremendous fragmentation of the information flow as information systems and applications have been developed over the years on an as-needed and sometimes piecemeal basis without adhering to two fundamental principles 1) never just computerize a paper process, always analyze and re-engineer processes to optimize them first and 2) any new application or process should be developed with the ability to utilize common pieces of information and expand on the previous functionality of the information infrastructure, not stand alone (connectivity or integration). The result is multiple stand-alone applications that generally

do not meet the needs of their intended end-users and are not capable of passing needed information on to another application or system without manual re-entry of data. APHIS needs a coherent information infrastructure capable of seeking out or receiving information from a multitude of diverse sources, correlating and integrating that information, and passing appropriate information to or at least making it readily accessible to staff within the organization.

APHIS can tremendously multiply the effectiveness of any level of staffing through the application of currently available technology in the areas of information systems and inspection equipment. New technologies must not be applied however, without re-engineering current workflow processes.

The recent development of web-based interfaces for retrieval of test results from the National Veterinary Services Laboratories (NVSL), access to foreign animal disease investigation data, and the implementation of continuing education opportunities accessible via net-conferencing technology have all been extremely successful. These applications should serve as models for future development efforts.

Recommendation

76. Direct APHIS-VS to establish an Office of Animal Health Information Coordination and Analysis to coordinate information acquisition, analysis, and flow within APHIS-VS.

Remarks

Direct APHIS-VS and CVB to establish an Office of Animal Health Information Coordination and Analysis (AHICA), tasked with coordinating information acquisition, analysis, and flow within APHIS-VS. The staffing of such an office will require a unique blend of expertise in information systems, database design and management, veterinary medicine, epidemiology, disease surveillance and monitoring systems and information analysis. Not every facet of this expertise has to be in-house; rather expertise in some of these areas should be sought in existing programs within other federal agencies, for example, the information gathering and analysis expertise of the National Security Administration or other federal intelligence agencies. The office should serve, as the nexus for all APHIS-VS surveillance and monitoring data, program data, and other forms or types of information that are essential to the missions of the agency. The ultimate goal of the Office would be to ensure that any end-user had access to all of the appropriate information needed to do their job, that information flow was integrated and that information tools and technology augmented staff efforts instead of adding to the workload.

Recommendation

77. Direct APHIS to support the use of new technologies.
ACE. **Provide input to the development of the Customs Service Automated Commercial Environment (ACE).**
TECS. **Direct APHIS personnel to take full advantage of the Treasury Enforcement Communication System (TECS) to identify and track repeat violators of import restrictions.**
WADS. **Revise the Work Accomplishment Data System (WADS) to incorporate risk assessment and to more accurately reflect workloads.**
AMS. **Make mandatory the use of the Automated Manifest System (AMS) for importers.**

Remarks

Direct APHIS to provide input to the development of the Customs Services ACE to ensure both accessibility and usability of the new system and optimize its functionality to meet APHIS' needs.

Direct APHIS personnel to take full advantage of TECS to identify and track repeat violators of import restrictions.

Revise WADS data at ports to incorporate risk assessment and to more accurately reflect workloads. Attention should be paid to making the capture of WADS data as automated and integrated as possible.

Make mandatory the use of AMS for importers. Additional product descriptors or classifications based on the Uniform Commercial Code should be added to the AMS or ACE to more precisely identify animal or plant products.

Apply search engine or intelligent agent technology to the process of reviewing electronic manifests.

Web-based technologies. **Encourage APHIS to continue development of web-based interface solutions as a primary portal for communication with and information transfer to clients.**
Electronics. **Apply search engine or intelligent agent technology to the review of electronic manifests.**

Encourage APHIS to continue development of web-based interface solutions as a primary portal for communication and information transfer with clients.

Recommendation
78. Augment the information currently collected on products seized in international mail facilities with additional information on
— consignor,
— consignee,
— country of origin, and
— specific type of product confiscated.

Remarks
Encourage AIQ to explore penalties and methods against importing illegal animals or animal products through the mail. This should also include implementing tracking of the consignor, consignee, country of origin, and type(s) of product intercepted.

Recommendation
79. Upgrade x-ray equipment to the most advanced technology available.

Remarks
This equipment should be installed as part of the baggage handling conveyors or mail handling conveyors so that 100% of baggage or mail could be examined. Other types of detection or inspection technologies (infrared, organics detection, etc.) should be explored and deployed as quickly as possible to enhance the limited human resources available.

Recommendation
80. Encourage APHIS to continue to pursue integration of its port information systems with Customs Service systems; this to eliminate the need to re-enter data from one system to the other.

81. Disseminate import permit information from the National Center for Import and Export automatically and electronically throughout APHIS, and to AVICs and state veterinarians.

82. Make software compatibility with state and industry stakeholder systems required criteria for acquisition of software or application development.

83. Upon availability, incorporate the national animal identification system into all developed and revised information systems.

International Information Committee Report

Mission

The mission of the committee was to review issues touching on the adequacy of international information on animal health.

Notes on Findings

The committee asserts that the U.S. cannot achieve exclusion, detection, assessment of risk or eradication, and control of foreign animal diseases without adequate, scientifically sound, rapidly accessible, and completely communicated International animal health information (IAHI). The effective collection, analysis, and use of IAHI are indispensable to safeguarding animal and human health. U.S. animal health information is an integral component of IAHI which cannot be separated, and which must be adequately reported and incorporated.

The recommendations contained herein do not discount the strides the U.S. Department of Agriculture (USDA) has achieved to date, but emphasize that certain areas still need continued improvement or significant change to achieve the goal of animal health protection. The six major principles and 29 recommendations identified by the committee as priorities are strategically interconnected and cannot be separated from each other, or individually prioritized.

Methods and Meetings

In conducting this review, committee members conducted numerous and intensive activities to secure information and insight from those who know the situation best. This extensive research was carried out, variously, on-site and through correspondence.

Principles and Recommendations

PRINCIPLE 3a
Internal and external communications are mission critical.

After multiple assessments of many associated agencies and divisions, one of the highest priorities of the committee's recommendations is to change, enhance, and optimize communication of International Information regarding animal health (both internal and external) in the Animal and Plant Health Inspection Service's (APHIS) Veterinary Services (VS) division of USDA.

The tried and true animal health information pathways of yesterday have served the U.S. public and animal industries very well in the past. Evidence abounds supporting the many successes of these past practices and decisions in the U.S. USDA and APHIS-VS should be very proud of their accomplishments in safeguarding the U.S. citizenship and animal industries.

The recent events in Europe revolving around bovine spongiform encephalopathy (BSE) and foot-and-mouth disease (FMD) dramatize the global ramifications of exposing animal diseases to the U.S animal industries. The mandate for almost instant and accurate communication regarding animal health information is evidenced by the tremendous upsurge in trade and travel in the world. It is not just a dramatic increase in shipments of international goods, but a dramatic increase in the movement of people as more and more passengers travel routinely around the globe. While trade restrictions can be placed upon an individual country, that does not restrict movement of people from that country. People movement, therefore, continues to constitute a significant potential for the spread of disease.

While state and federal governments all share a common goal to expand exports and international trade, another common goal must be to protect animal health from the increasing potential for harm from pests and diseases from trade expansion. The U.S. has experienced a dramatic increase in the last several years in agricultural imports, including animal products, as well as exotic species increasing the risk to the U.S. meat and poultry industries.

The explosion of communication pathways in the world economy has changed the way animal disease monitoring and management decisions can be approached. APHIS-VS, therefore, needs to upgrade the current system for collecting and managing data relating to domestic and foreign animal diseases.

Recommendation

84. Commit resources to upgrade communication abilities within APHIS-VS and USDA to better connect USDA and related agencies; and to better monitor animal health issues among various agencies.

Remarks

If information is power in doing business well, it is no longer acceptable that limited communication within the agencies of USDA is the normal course of doing business. Internal communications between and within various agencies in USDA are not operating as needed. Today's e-mail and electronic messaging systems make real-time communication a mouse click away whether overall systems are compatible or not. The constant battle for communication resources for APHIS-VS, both budgetary and visionary, can best be accomplished using the many communication pathways available to the rest of the business world. Information technology is a constantly evolving environment. What makes intuitive sense today may be antiquated tomorrow. APHIS-VS personnel are not able to effectively communicate with each other because the systems are down or their software platforms are incompatible is unacceptable to USDA, stakeholders, and state animal health agencies who are all being served.

Recommendation

85. Improve APHIS-VS' ability to communicate animal health issues information to its personnel, interested state animal health agencies, and vital partners.

Remarks

Coordinate and constantly engineer the ability within APHIS-VS to communicate, real time, all the necessary information about animal health issues, both domestically and foreign, to its personnel, interested state animal health agencies, and others with a vested interest in animal agriculture and trade. This must be done as soon as possible.

The communication between stakeholders in the U.S. is a complex issue involving other federal agencies, state regulatory agencies, and industry players. Premature or inaccurate information, not properly confirmed, can and has affected markets and businesses in a negative manner. However, this cannot be a reason to not communicate accurate, real-time information to all the external domestic stakeholders. The state agencies, in particular, have tremendous exposure and share the responsibility of protecting the animal economies of their states by applying the IAHI. The information collected and managed by APHIS-VS must be communicated more effectively to the affected state agencies. Dissemination to the industry stakeholders is also a priority, but may best be accomplished through the regional and state communication pathways. APHIS-VS has a responsibility to the state officials and regional APHIS regulatory officers in managing disease risk. Constantly keeping the state and regional officers informed is a necessary risk tool in this highly mobile, almost instant transportation environment. Communication technologies are affordable and reliable, and must be coordinated to include real-time dissemination of animal health information to all regional and state agencies affected. There are many motivated people at the regional and state levels that must be quickly engaged to be effective at properly managing animal health issues. The more these people know and understand the "landscape" of animal health

issues, the more coordinated and effective the entire system will become. Furthermore, challenges in Europe, involving BSE and FMD, have taught us there will be many public relation (PR) issues that need local attention. The more informed these local officials are, the better they will be able to handle these PR issues as they arise.

Recommendation

86. Enhance and upgrade electronic monitoring of Internet communications, including enhanced security; capacity to tap into more foreign and domestic communication services; and the ability to route animal health queries to National Surveillance System (NSS). The Centers for Epidemiology and Animal Health (CEAH) should coordinate activity.

Remarks

Security of Internet exchanges is an issue, but there are many ways to design, implement and share databases without compromising national security. Coordinating communications worldwide for the real-time delivery of timely information about foreign animal health events is an extremely important priority in today's global and ever dynamic economy.

Recommendation

87. Secure APHIS-VS authority to administer information support for International Services (IS). Strengthen the APHIS-VS role in the Office International des Epizooties (OIE), especially as it encounters pressure to compromise over trade issues.

Remarks

IS now collects animal health information abroad and shares it with appropriate USDA personnel. Trade issues pose a conflict in acting on this part of their mission. Provide APHIS-VS with the ability to direct this part of IS' mission to fully capitalize on resources outside of the U.S. borders to collect animal health information. Further, the reporting of this information to APHIS-VS must be done in a very timely manner, at least once a week. In times of heightened disease risk this transfer of directed animal health information to APHIS-VS ought to be done daily. Accountability for this source of information from IS needs to be a shared management initiative between APHIS-VS and IS. While security of information is a concern, USDA has worked to develop a sufficient number of key personnel with appropriate clearances and ability to handle security issues.

Continue and strengthen the role of APHIS-VS within the framework of OIE. OIE is recognized as a useful platform to coordinate worldwide reporting of disease status country by country. Since OIE is also organized to address trade issues, its effectiveness at times has been compromised due to the overriding trade issues and the lack of adequate detection, surveillance, and reporting systems in many countries. Also, all countries in the world are not members of OIE and have no responsibility to report animal health issues. Communication and verification of the disease status of all member countries is an ongoing role of APHIS-VS to ensure the animal industry is not compromised in the quest for more trade. Governments, whether in the U.S. or in other countries, do not conduct unannounced inspections; therefore, making it difficult to verify animal disease status. APHIS-VS should augment the use of IS personnel to collect this type of information. Veterinary Services, as well as other USDA agencies or divisions, has a key role in trade now and will continue to have a key role in the future. Our trade negotiators cannot be prepared to conduct their best work without current information about animal diseases, both domestic and worldwide.

Recommendation	*Remarks*
88. Direct APHIS-VS to develop and disseminate an annual report describing international surveillance activities.	Direct APHIS-VS to market their ability to capture and coordinate this animal health information to government agencies and industry affiliates. APHIS-VS and other USDA agencies and divisions have a key role in trade, and will continue that role in the future. Trade negotiators cannot be adequately prepared to effectively conduct their best work without current information about animal diseases, both domestic and worldwide. In addition, various agencies both within and without USDA, including APHIS, IS, the Foreign Agricultural Service (FAS), U.S. Trade Representative (USTR) and the U.S. Department of State, oftentimes have varying missions in the trade arena. While there is liaison and coordination, this must be strengthened to achieve the goal of increasing exports yet knowing the information relating to animal diseases for potential imports. Develop an annual report highlighting APHIS-VS activities. This annual report would become the standard document used in trade negotiations to effectively gain better access to world markets and such a report could inform interested trade analysts about the key role of animal disease reporting and management relative to trade accomplishments. APHIS-VS needs to develop an annual report detailing all appropriate international APHIS-VS activities. Other countries already are providing such annual reports.

PRINCIPLE 3b
International animal health information (IAHI) gathering must be excellent.

It is crucial that APHIS-VS be able to obtain adequate information on the health of animal populations in other countries. Such data are required to make scientifically based risk assessments of the trade in animal and animal products as well as to focus limited personnel resources on those foreign animal disease entry pathways that present the highest risk for disease introduction into the U.S. In addition, state animal health officials also require IAHI in order to determine risk to state animal industries and focus their resources where needed.

Currently, APHIS-VS gathers international animal health information through a number of sources to conduct risk assessments for import requests and to verify the disease status of trading partners. The process of gathering that information appears insufficiently organized to adequately safeguard the animal population.

OIE receives reports on worldwide animal disease outbreaks and distributes that information to its 158 member countries. Because most of the diseases of concern to member countries, including the U.S., are contained in the OIE List A, the reporting of outbreaks of those List A diseases occurs rapidly after identification and reporting to the OIE. In spite of this rapid official reporting of disease outbreaks by the OIE, unconfirmed information about animal disease situations is not reported to the OIE, and oftentimes not even communicated to U.S. officials by affected U.S. trading partners. Even when unofficial information is reported by trading partners, APHIS is slow to react to confirm and respond to such information. It is acknowledged that premature or inappropriate response to unconfirmed information can cause major problems. A system needs to be further refined to deal with this issue. It is also important to note that many (if not most) of the diseases on OIE List B which require less prompt reporting to the OIE, are also foreign to the U.S. (This includes BSE, a disease over which there is escalating concern.)

APHIS depends heavily on unconfirmed intelligence. One of the sources for this type of IAHI is IS. Although the priority mission of IS includes the enhancement of the capacity of APHIS to safeguard America's agricultural health, and although this component of their mission is frequently listed as a first priority, overriding attention is frequently given to assist agricultural trade by resolving trade

barriers related to animal or plant health issues. Frequently, this occurs at the expense of the first mission component of safeguarding America's agricultural health. Currently, IS field service employees are not required to gather and report IAHI. When the information is gathered and reported, the information often never reaches the appropriate personnel in APHIS-VS.

Other sources of unconfirmed reporting include FAS and Plant Protection and Quarantine (PPQ) employees on overseas assignments. Although PPQ generally recognizes their animal health safeguarding role, FAS has an altogether different mission, namely the maintenance and enhancement of trade in U.S. agricultural products. As with IS, there is no formalized IAHI gathering and reporting requirement for these two agencies even though they represent two significant sources of IAHI. In addition, even when present, the animal health training of employees in those agencies is insufficient to reinforce the importance of disease gathering and reporting activities. Too often USDA and state personnel are using informal sources such as ProMED as routine sources of international animal health information.

There are a number of other potential sources for IAHI gathering. Included in these potential sources are APHIS-VS employees detailed to positions in the Centers for Disease Control and Prevention (CDC); military personnel in reserve units performing humanitarian missions overseas; employees of universities and animal pharmaceutical companies traveling in foreign countries; National Security Agency intelligence information which may contain information about international animal health; and U.S. Customs data relative to importations and violations. Oftentimes much information is shared through informal contacts with professionals and colleagues in the U.S. and in foreign countries via e-mail. The information must be processed and verified but can be quite valuable. All of these are potential sources for information that can be reviewed, verified, and analyzed by APHIS in order to make sound decisions in support of its animal health safeguarding mission.

The committee finds the following critical issues affecting the quality of IAHI:

- The current system of IAHI gathering is inadequate to protect U.S. animal populations.
- APHIS-VS personnel report that the amount of information available to conduct proper risk assessments is inadequate.
- There is no identified unit within APHIS-VS that has responsibility for receiving, verifying, processing, and distributing IAHI.
- There are a number of additional sources of IAHI available to APHIS-VS that are not utilized.
- In a system of announced inspections between countries, it is difficult for APHIS-VS to verify disease reporting information from trading partners. The World Health Organization has a "WHO Outbreak Verification List" that receives unconfirmed reports of disease outbreaks from various sources, requests feedback on accuracy from numerous contacts in 153 countries to eventually confirm, and then accurately report human disease outbreaks.
- There is a lack of emphasis on animal health safeguarding functions in other USDA agencies including IS; oftentimes, other mission critical activities of these agencies are performed at the exclusion of animal health safeguarding activities.
- FAS does not have a clearly defined animal health safeguarding role; yet, this agency is in a unique position to provide timely IAHI.
- There are many informal systems for gathering IAHI within APHIS-VS.
- IS and APHIS-VS have competing missions that detract from the animal health safeguarding system.

Recommendation

89. Direct APHIS-VS to enhance international information gathering in cooperation with IS, Plant Protection and Quarantine (PPQ), Foreign Agricultural Service (FAS), and other USDA agencies.

Remarks

Direct APHIS-VS to establish appropriate responsibility and accountability within the agency to enhance existing international information gathering pathways. Work should be undertaken with IS, PPQ, FAS and other USDA agencies to insure specific and clear missions and assignment to collect and report international animal health information.

Formalize the gathering and reporting of IAHI from IS, PPQ, FAS, and CDC through the establishment of internal APHIS-VS written policies and procedures as well as memorandums of agreement with those agencies.

Recommendation

90. Establish a centralized group, preferably within APHIS-VS and with CEAH as an integral component, to receive, verify, process, and distribute all IAHI material.

Remarks

Establish a centralized group, preferably within APHIS-VS, that is responsible for receiving, verifying, processing, and distributing all IAHI. This group should integrate with other similar groups already in place such as PPQ. CEAH should be an integral component of this centralized group.

If not prohibited by contract requirements, ensure the capture of IAHI available as a by-product of contract surveillance studies performed by CEAH for foreign countries.

Expedite the capturing and storage of information submitted electronically in support of import applications.

Recommendation

91. Secure
— specific animal health training for all IS, FAS, and PPQ employees;
— pre-assignment briefings on international animal health;
— training for U.S. Customs agents; and
— sufficient funding for additional veterinary field service officers, including those working in customs.

Remarks

Work with IS, PPQ, and FAS to add specific activity elements to the position descriptions of all IS field service officers, and PPQ and FAS employees on international assignment that require active pursuit and reporting of IAHI. Ensure that successful achievement of those activity elements is rewarded and that unsuccessful achievement is documented on performance evaluations.

Establish an innovative and creative system to reward performance and employee productivity and to improve employee retention.

Ensure that specific animal health training is provided to all IS, FAS, and PPQ employees to improve their animal health knowledge base; provide pre-assignment briefings on international animal health that emphasizes the importance of gathering and reporting of IAHI to fulfill the USDA mission. Consider developing similar training for U.S. Customs agents.

Work with IS to secure funding for additional veterinary field service officers in order to expand the coverage to all current and pending trading partners. Consider the assessment of user fees from trading partners in order to facilitate this expansion of APHIS-VS presence overseas.

At ports of entry without permanent full-time APHIS-VS personnel, assign APHIS-VS veterinary medical officers (VMOs) and/or animal health technicians (AHTs) to work directly with both PPQ and U. S. Customs at those ports. Require regular on-site visits as an activity element for those positions. Ensure that these VMOs and AHTs are adequately trained to perform this function.

Recommendation

92. Initiate active participation in the Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases (EMPRES), and other available electronic systems with an IAHI component.

Remarks

Work with those responsible for collecting and maintaining such information to enhance its use in safeguarding the U.S. animal population. The predictive component of those systems can be used in the preventive phase of the U.S. emergency response system as well as in domestic quality assurance programs.

Recommendation

93. Direct APHIS-VS to enlist support for information gathering from the Department of Defense, National Security Agency, U.S. Customs, and U.S. Fish and Wildlife Service, private industry, the veterinary community, international trading partners, and other USDA agencies.

Remarks

To strengthen avenues of international information gathering, direct APHIS-VS to enlist cooperation and formal commitment of the Department of Defense (DoD), the National Security Agency (NSA), the U.S. Customs Service, and the U.S. Fish and Wildlife Service (USFWS). Other sources should also be utilized to rapidly and frequently collect and communicate IAHI including private industry, the veterinary community, international trading partners as well as other USDA agencies including Wildlife Services (WS).

- Seek a cooperative agreement with DoD in order that gathering and reporting of IAHI be included in the mission of reserve units on "civil affairs" deployments, and ensure that such units are debriefed after every mission.

- Seek a cooperative agreement with NSA and the Central Intelligence Agency (CIA) to obtain IAHI captured by those agencies' intelligence gathering activities.

- Seek the assistance of Wildlife Services to obtain and report IAHI obtained through their contacts in the international wildlife community.

- Seek the assistance of private industry, such as the animal pharmaceutical industry, as well as the university community, to obtain IAHI through their employees deployed on international travel and through their foreign country contacts.

- Seek the assistance of the Food Safety and Inspection Service (FSIS) to obtain and report IAHI during on-site packing plant reviews in foreign countries.

- Seek the assistance, through the American Veterinary Medical Association (AVMA), of veterinarians participating in animal health and humanitarian missions to foreign countries to gather and report IAHI.

- Explore cooperative agreements with other trading partners, such as Australia, New Zealand, and Canada, who have veterinarians on foreign assignment to share IAHI with APHIS-VS.

- Expedite the establishment of a dependable method of connecting to the U.S. Customs International Trade Data System (ITDS) database and implement an auditing system for that data.

- Work with USFWS to establish reliable, timely connectivity to their database, especially for obtaining information on international importations.

- Work with OIE Collaborating Centers and the network of people throughout the world that are working on surveillance and risk assessments to obtain IAHI.

- Explore the possibility of working with Customs agencies in Canada and Mexico in order to discover which animals and animal products are being cleared for importation into those countries that may be transshipped to the U.S.

PRINCIPLE 3c
Diagnostic facilities and staffing must be excellent.

Recommendation

94. Promote implementation and full funding for the APHIS-ARS Master Plan for Facility Consolidation and Modernization on an accelerated timeframe of three to four years, and for the Modernization Plan for the laboratories at Plum Island.

Remarks

Implement the amended Master Plan to foster cooperation and efficiency between the National Animal Disease Center (NADC), the National Veterinary Services Laboratory (NVSL), and the Center for Veterinary Biologics (CVB). Implementing the APHIS-Agricultural Research Service (ARS) Master Plan for Facility Consolidation and Modernization will also empower USDA agencies to better safeguard animal populations and industries as well as understand the strengths and weaknesses of other countries' animal diagnostic and reporting systems. The USDA-proposed five-year amended implementation plan outlined must be accelerated into a three to four year plan. There is a need to ensure appropriate funding of the Modernization Plan for the laboratories at Plum Island.

Critical components in the international animal health information arena include NADC, an arm of the ARS; NVSL, a part of APHIS; and CVB, a part of APHIS. All of these veterinary units are located in total or in part in Ames, Iowa. Each has its own mission and responsibility in its critical role in safeguarding the health and well being of the animal industry in the U.S. Each has its own activity in utilizing and acting upon critical international and domestic information about animal diseases, emerging and known. Several groups have done assessments of the needs for operational, infrastructure, and funding improvements for these facilities and personnel in the last 10 years.

The results of all of these needs assessments are a structured, detailed plan to manage the accumulating needs of these agencies. This so-called "Master Plan" has been delivered to Congress and is known as the "U.S Department of Agriculture's APHIS-ARS Master Plan for Facility Consolidation and Modernization." It details very well the extraordinary and immediate need to upgrade and fully consolidate all three of these units under one cooperative facility in Ames, Iowa.

Nearly all the foreign animal diseases worldwide require ongoing applied research to better safeguard the U.S. domestic animal population from devastating consequences. In addition, new animal and human diseases are emerging at an alarming rate. Seventy percent of the emerging diseases of humans are zoonotic. It is essential, therefore, that adequate applied research facilities be constructed and equipped to study these emerging diseases. Increased animal research on these diseases is of paramount

importance. It is important to point out the need for immediate and adequate laboratory responses in the event of either a bioterrorism or agroterrorism attack on the U.S.

Within NADC, NVSL, and CVB, a very large percentage of the available Biosafety Level 2 and 3 laboratory facilities are in need of immediate upgrade and additional facilities. Without these upgrades, necessary applied research on foreign animal disease (FAD) and emerging domestic diseases cannot be accomplished in a timely manner, if at all. USDA has no access to any Biosafety Level 4 facilities, and such access may be necessary in the event of an emerging disease of agricultural animals with serious human health impacts.

Recommendation

95. Ensure that critical agencies, personnel, and programs for the U.S diagnostic and applied research infrastructure are superlative, and that this diagnostic and applied research excellence is a critical agency priority for USDA.

Remarks

A world respected animal research and diagnostic infrastructure is paramount for safeguarding of the $100 billion domestic livestock and other animal industries and the local economies that depend on them.

Maintain a continually focused, annual review and improvement of personnel and equipment to identify and stay abreast of operational needs and the scientific acumen that is necessary to adequately address emerging disease investigation and management.

Prioritize funding for NADC, NSVL, and CVB as a very critical need for USDA.

Communication and cooperation between NADC, NVSL, and CVB have been less than adequate, due to a number of reasons. Leased facilities, located in various locations throughout Ames, make it nearly impossible to coordinate effectively between programs and agencies. Sharing laboratories for cooperative applied research is also very difficult, again due to location issues and inadequate availability. Administratively, efficiency between agencies is lacking. There are too many buildings spread too far apart, frustrating the sharing of support personnel.

In order to be prepared to assess international animal disease situations, the U.S. needs a research and development (R&D) community fully engaged in up-to-the-minute developments around the world. For example, agricultural imports into the U.S. are up over 500 percent in the last 10 years. This dramatically increases the caseload for USDA agencies. In fact, each of these three units (NADC, NSVL, and CVB) has encumbered increasing workloads over the last 10 years without any commensurate increase in funding. For instance, CVB has had no measurable increase in funding for over five years, yet the caseload has grown over 300 percent. Emerging animal diseases, combined with current recommendations for increased vaccine use to minimize risk of antimicrobial resistance from the use of antimicrobials in animal agriculture, have increased the workload of CVB.

It is important to have an internationally recognized diagnostic and applied research program. Evolving equivalency negotiations and risk analyses mandate “cutting-edge” applied research and development regarding animal diseases. Furthermore, new scientific technologies emerging for many diseases, both domestic and foreign, which require up-to-date equipment and expertise in new technologies. Basically, without

outstanding scientific understanding and capabilities, the U.S. position in trade negotiations is seriously weakened. (Make sure that Congress has recognized this need with the initial phase. It is critical that this continue to completion in the following years and that personnel and operational costs are funded.)

It is essential that the necessary applied research be conducted to maximize the international competitiveness and acceptance of U.S. animal agriculture and to support optimal preparedness for the most prevalent threats. New methodologies to better diagnose existing diseases and to address emerging diseases need to be incorporated as rapidly as possible, once the tests are fully validated. In addition, as the international standard setting body for diagnostics of transboundary diseases, the OIE needs to be encouraged to update and improve diagnostic and control methodologies in a more timely and efficient manner.

PRINCIPLE 3d
Internal agency structures and systems must deliver high quality IAHI.

Recommendation

96. Establish a single, functional APHIS-VS unit to lead, coordinate, and shape IAHI collection, access, and delivery.

Remarks

Because of the current mission of CEAH, it is the most likely agency to be able to achieve this goal and has the greatest share of the attributes needed to attain systems delivery and coordination. Greater priority should be given to upgrade existing components of other groups within APHIS provide an expedient resolution and continued success.

Coordination and utilization of international animal health information requires significant organizational and administrative friendly mechanisms. Key linkages and commitment to communication are required. Traditional components must be adapted to facilitate desired change and outcome.

Preparation of the findings and development of recommendations were accomplished by multiple agency visits and employee interviews at numerous locations. Input from on-site experience as a result of the recent FMD issues and awareness was also helpful. The committee met at a common site and combined the collected information and reports with discussion of what they found and recommend for this principle of organizational impacts and overall delivery mechanisms.

- APHIS-VS has multiple units and subunits located in numerous locations including virtually all of the states and territories.

- International information related to foreign countries is collected by other agencies in USDA and, through some collaborative efforts, then reaches APHIS-VS from various, somewhat disconnected channels.

- Similar disconnects were found in all other principle issues identified in this review.

Recommendation

97. Promote a clear organizational mandate within USDA to administer, access, capture, verify, and communicate international information to all levels of USDA, as well as to all state departments of agriculture including all state veterinarians' offices.

Remarks

Establish a clear organizational mandate for USDA to be able to administer, access, capture, validate and communicate international information to all levels both internally to all USDA agencies as well as to all state agencies charged with safeguarding animal health including all state veterinarians offices. Without a clear agency mandate that will apply sound administrative principles, USDA will not be able to execute and achieve the essential collection and delivery mechanisms for international information.

International information related needs and activities occur primarily at the ports of entry into the U.S., within the boundaries of countries where trade occurs, at internationally recognized organizations, at various levels of USDA by state animal health agencies and at various levels within the domestic livestock, poultry, exotics, and aquatic animal related systems of the U.S.

Information gathering systems are fragmented at all levels of interaction.

Functional components of a total international animal health information collaborative effort exist but should be organizationally and administratively connected and augmented.

Excellence in information sharing and interactivity to provide desired performance should be prioritized and directly related to incentives.

Interviews, reviews, and contacts at each level of APHIS-VS consistently revealed the general lack of a system or process to address the need to adequately develop a sense of employee ownership and compensation relative to the competitive and essential nature of talent, initiative, and professional expertise required to deal with IAHI.

PRINCIPLE 3e
As U.S. animal health is a key component of IAHI, the nation needs a sound system of domestic animal health reporting.

Recommendation
98. Direct USDA to clearly define the National Animal Health Reporting System (NAHRS) as a cooperative, not voluntary, program for all industries and states that request USDA certification of animal products for export.

Recommendation
99. Direct USDA to immediately implement an annual publication summarizing progress in animal disease control and eradication programs for each major livestock commodity species and to distribute such a document to all IS, PPQ, FSIS, FAS, and U.S. Trade Representative and U.S. State Department personnel that interact with representatives of foreign governments; to USDA employees; and to each member of the U.S. Congress.

Remarks
Direct USDA to immediately implement a yearly publication succinctly summarizing progress in state-federal animal disease control or eradication programs; stating the national status regarding each OIE List A and List B disease relative to international trade; listing diseases for which vaccination is permitted; summarizing the risk factors associated with each disease and the recommendations of the Secretary's Advisory Committee on Foreign Animal and Poultry Diseases. This document should be distributed to all IS, PPQ, FSIS, FAS, and USTR and State Department personnel that interact with representatives of foreign governments, to USDA employees, and to each member of the U.S. Congress to permit appropriate congressional oversight and support of the safeguarding process;

Direct USDA to publish an annual animal health update for each major livestock commodity, namely, cattle, horses, poultry, small ruminants, swine, and aquaculture and exotic species.

Domestic animal health information and reporting is an essential component of international information and is the foundation of IAHI. No system currently exists in the U.S. to adequately report this critical animal health information. Without a strong domestic animal health information collection system, the IAHI system will not be complete.

OIE member countries are required to complete annual, monthly, and special situation reports documenting their animal health status. As soon as the U.S. submits reports to the OIE, domestic animal health information assumes international dimensions and its integrity becomes the basis of U.S. credibility in international health and trade circles. Consequently, transparency of reporting is paramount. However, even in the absence of reporting, because of electronic interconnectedness with the global trading partners, domestic animal health information becomes international as soon as it is formulated. It is important to remember that the strength of a trading position is dependent on the strength of the domestic information system.

Recommendation

100. Develop and implement a safeguarding information program that involves all appropriate individuals and agencies in the information chain.

Remarks

Develop a safeguarding information program that involves every step in the information flow chain; development should be cooperative among all interested parties, and the program should be implemented electronically. Required participants should include livestock and poultry producers; accredited veterinarians; FSIS veterinary medical officers and inspectors at packinghouses; state and federal regulatory and diagnostic laboratory personnel; veterinary drug and biological manufacturers; and the academic community. Successful disease exclusion requires that these individuals gather all possible identification, and point-of-origin data on every suspected exotic or emerging disease condition. These findings should be promptly reported to state and federal officials so that timely epidemiologic investigations can be initiated and the results of each investigation transmitted electronically up and down the chain.

Information on the nature and distribution of U.S. livestock diseases is also essential for establishing animal health, food safety and public health programs and for prioritizing and evaluating domestic disease control programs and vaccination activities.

U.S. import measures designed to exclude FAD must be based on documentation that diseases in question are not present in the U.S. or that nationally sponsored control programs are in place. This requires evidence that nationally operated monitoring, surveillance, and reporting (MS&R) systems are in place for OIE List A and List B diseases.

Currently, the U.S. has no such domestic animal disease reporting system, but only a disconnected collection of animal health information sources. In addition, U.S. relies on a network of federally accredited veterinarians in private practice to alert the nation to new disease situations.

Recommendation

101. Strengthen the federal system of accreditation for veterinarians with more stringent qualifications, including a requirement for (funded) continuing education in foreign animal disease, and reporting and use of international animal health information. ***(See also Response Summary, Principle 4j, and Exclusion Summary, Recommendation 69.)***

Remarks

A requirement for continuing education in foreign animal disease as well as reporting and use of international animal health information should be encouraged and funding provided for this additional training requirement.

Principle 3f
Ports of entry need expanded detection and information gathering.

Recommendation

102. Replace manual reviews of manifests with the automated cargo targeting system being developed by APHIS (see also Exclusion Committee Summary, Recommendation 82); and immediately implement software screening of complex customs entry data to assign scrutiny of highest risk entries.

Remarks

Immediately implement software screening of complex U.S. Customs entry data to assign focused inspection scrutiny on highest risk entries. The Automated Targeting System must be fully implemented as soon as possible. Certain information should be shared with state regulatory stakeholders. There is clear recognition that proprietary information cannot be shared beyond federal agencies; but, limited information on product, country of origin, and destination should be shared without compromising any proprietary source.

Interdiction of prohibited animal products in U.S. airports, maritime ports, and mail centers as well as increased smuggling of product indicates a true need to electronically compile and communicate all sources of international animal health information. By combining international sources of animal health information with the information gathered at U.S. ports of entry, the U.S. will gain a better assessment of risk and strengthen attempts to exclude or rapidly detect disease entry.

For air, maritime, rail, and truck shipments with inadequate international information such as inaccurate lists or collective terms for products on manifests, reject, and return the shipments to country of origin. Too often, product is finding entry through U.S. ports which is later found to pose a threat because of inadequate international information. It is vital to evaluate the possibility of implementation of the automated electronic entry system currently in use in Mexico as a viable model for information entry.

Data management systems, with respect to cargo shipments, are particularly cumbersome. Currently, shipments are reviewed manually, with an inspector visually examining all manifest descriptions on a computer screen. Physical inspection then depends on the inspector's ability to recognize a particular product as a threat. The committee understands that an automated cargo targeting system for APHIS is being developed. Such a system would streamline the process tremendously and provide much needed increased security.

Recommendation

103. Move to collect all international information in a consolidated system with appropriate analysis for risk.

Remarks

Establish optimum interdiction and detection systems for all entry pathways for animals or animal products into the U.S.; this, to provide access and utilization of IAHI on adequate assessments of risk from previous statistical records of country animal health status, recent shipment records, and all agency actions. Collect all international information in one consolidated system for appropriate analysis for risk. Information from inspections at maritime ports, airports, international mail centers, cruise ship lines, and smuggling interdictions findings should be integrated and reported. Data gathered on foreign animal health within a specific country must somehow be coupled with statistical data gathered from inspections of product originating from that nation in U.S. ports and airports to allow for better exclusion and detection of animal health problems.

In addition to major concerns on the adequacy of international animal health information collected from various nations around the world and how this information was communicated throughout USDA and to other stakeholders, the committee also found

lack of adequate information systems for the data collected from arriving international passengers and shipments. Committee members traveled to ports and airports including New York, Los Angeles, Nogales, Orlando, and Miami. In addition, the committee interviewed various individuals associated with the inspection systems.

Procedures of inspection, review of information regarding incoming international shipments, application of screening technologies, and relations with associated governmental agencies differ significantly from port to port. APHIS personnel at the airports, ports, and international mail centers were observed to be dedicated and genuinely proud of their role in preventing foreign animal and plant health problems from entering this country. However, inadequate staff, lack of highly effective technological resources, and interagency conflicts or lack of consensus hamper USDA's ability to provide the necessary level of surveillance.

Recommendation

104. Devise improved port procedures to gather international information, including the use of nondestructive technologies, additional personnel, and canines. ***(See also Exclusion Summary, Recommendations 2a and 2b.)***

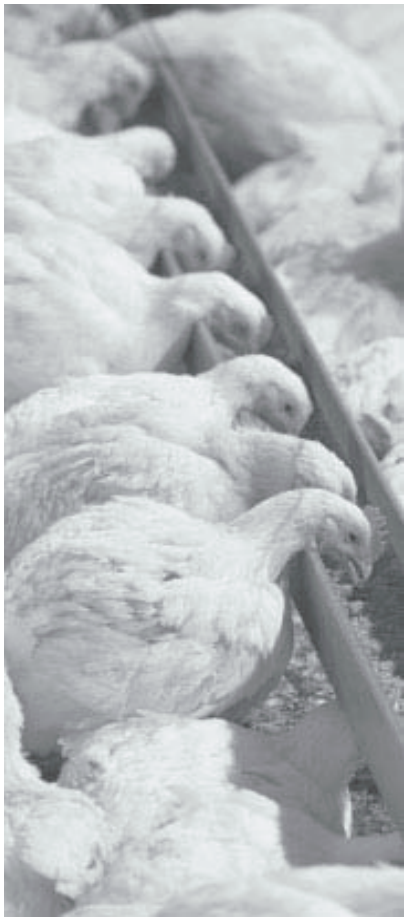
Remarks

Focus a pilot sentinel system on those ports of entry with the greatest live animal entries; human air passenger entries from high risk countries; air, maritime, rail, and truck shipments from high risk countries as well as international mail and packages; courier service routes; and cruise ship lines. To better assess the needed placement of limited resources, such a pilot program could intensify inspections to capture at least 50 percent to 100 percent inspection of entry categories and a statistical analysis of the data gathered will better determine future information needs.

Provide airline and cruise passengers with detailed information regarding products that are prohibited from the specific countries in the region of their destination. USDA should immediately develop a traveler education and information program in cooperation with travel agencies, tour companies, shipping companies, the airlines, the Immigration & Naturalization Service and the State Department. The purpose is to assure that U.S. and foreign nationals who are recipients of visas, airline or boat tickets receive a card succinctly indicating that animal or plant products are forbidden entry into the U.S. without permit and that baggage is subject to inspection and seizure. This procedure will help to insure appropriate exclusion of international shipments or collection of information on international products entering.

Secure better nondestructive screening and detection technologies, increased use of technology, as well as additional personnel and dog team resources, at ports of entry to screen passengers, luggage, mail; air, maritime, rail and truck shipments to gain adequate international information on prohibited products that will jeopardize animal health.

In certain ports, as a result of individual port director's cooperation, APHIS has been given a primary placement to allow adequate inspection of arriving passengers luggage. In other airports, APHIS is relegated to a subsidiary role to U.S. Customs. In those airports, when any concentration of passengers begins to backup, Customs overrides the need for APHIS inspection and waves the passengers on through with no questioning or inspection whatsoever.



APHIS has no rapid way to electronically enter animal or plant products detected or country of origin. Currently, the only system beyond recording some interdictions for quarantine inspection is to rely on the long term experience of employees and their institutional memory. A better system of utilizing the international interdictions could be crafted instead of relying on the individual employee's memory of past confiscations of product. Increased international information on these airport interdictions coupled with interdictions at maritime ports, cruise lines, mail centers, and smuggling seizures could readily focus greater scrutiny on higher risk entries. Such a system currently operates at a basic level from employee experience and knowledge, but documentation from all sources has the benefit of focusing attention from other agencies, such as Customs, and validates the need for additional personnel and screening technologies to gain the international information needed.

USDA has collected some statistics of interdictions at ports of entry, but these records are not complete since inspectors fail to record all findings at busy airports in peak periods. Rarely are fines applied when prohibited products are detected due to lengthy paperwork requirements as well as inability to collect or administer the penalties. The end result is a lack of statistics on entry of prohibited international items and a lack of deterrent on those passengers violating these prohibitions. No observation was made as to how, or if, the prohibited items or violations at the maritime ports are integrated with detections at airport inspections, international mail centers and smuggling interdiction findings.

Response Committee Report

Mission

The mission of the committee was to describe the qualities needed for a national response effort. Such an effort should provide an efficient, coordinated response to animal diseases and health emergencies; this, in order to minimize the impact of disease and health emergencies to animals, producers, consumers, the environment, and the national, state, and local economies.

Notes on Findings

The eleven principles and associated 49 actions in this report provide a means to develop a dynamic response plan, single-volume manual for a general emergency response to disease and animal health issues. Weaknesses addressed at all levels (e.g., government, academia, veterinary medicine, and animal and allied industries) are:

- Infrastructure;
- Communications;
- Data collection, processing and networking;
- Legal agreements and authorities;
- Current surveillance; and
- Needed applied research.

Several of these weaknesses have been noted in previous studies.

The committee asserts that the Animal and Plant Health Inspection Service's (APHIS) Veterinary Services (VS), state agencies charged with safeguarding animal health, veterinary medicine and animal industries should work together in order to:

- Implement strategies;
- Provide an efficient, coordinated response to animal diseases and health emergencies; and
- Minimize the impact to animals, producers, consumers, the environment and the national, state, and local economies.

The committee was encouraged that APHIS-VS is active in instituting response measures between federal, state, and industry leaders. (Much of this activity has been heightened by the recent outbreak of foot-and-mouth disease in the United Kingdom and other countries, and by the sheep incident in Vermont.)

The resulting program should meet the changing needs of the animal industry as it faces the threats of possible foreign animal diseases, bioterrorism, emerging diseases, food safety issues, zoonotic diseases, and wildlife diseases; and the constant need to complete the current regulatory eradication programs against bovine and swine brucellosis, bovine tuberculosis, and pseudorabies.

Methods and Meetings

The committee met several times by conference call, e-mail, and in a two-day meeting in Denver, Colorado. In addition, the committee visited:

- APHIS-VS;
- The Centers for Epidemiology and Animal Health (CEAH);

- The Foreign Animal Disease Diagnostic Laboratory (FADDL) in Plum Island, New York;
- Emergency Programs (EPs);
- The Emergency Operation Center (EMOC);
- Wildlife Services and other APHIS agencies in Riverdale, Maryland;
- Both Eastern and Western Regional Emergency Animal Disease Eradication Organization (READO) directors; and
- Eastern APHIS Headquarters.

The committee also:

- Interviewed veterinarians returning from foot-and-mouth disease (FMD) duty in England;
- Talked to several state veterinarians and area veterinarians in charge (AVIC);
- Participated in emergency program exercises in Florida;
- Engaged in State Emergency Program discussions and planning; and
- Talked to several animal industry leaders.

Several recent reports of studies concerning APHIS, state, and industry were reviewed and are referenced in this report. The National Animal Health Emergency Management (NAHEM) reports were greatly appreciated.

Principles and Recommendations

PRINCIPLE 4a
Any national response system must be a coordinated, cooperative effort of federal and state regulatory agencies, animal industries, and related groups.

Recommendation

105. Continue cooperative efforts of APHIS, other federal agencies, and states with animal industries to complete disease eradication programs in a timely manner; develop new disease eradication programs; and, when needed, to respond to emerging diseases.

Remarks

Over the years, several programs including the eradication of classical swine fever, highly pathogenic avian influenza, Sheep scabies, and others have followed the successful use of cooperative efforts. New programs such as a Johne's Disease program should follow similar cooperative efforts. Use of the committee structures in United States Animal Health Association (USAHA), National Institute of Animal Agriculture (NIAA), American Association of Veterinary Laboratory Diagnosticians (AAVLD), and the American Veterinary Medical Association (AVMA) along with the recent development of the Animal Agricultural Coalition (AAC) and the National Animal Health Emergency Management (NAHEM) Steering Committee are the instruments of this success and need to be supported and strengthened.

Recommendation

106. Lead the development of cooperative efforts among federal and state agencies, animal industry and veterinary medicine, and others to develop, implement, and enhance on-farm animal health quality assurance programs to develop best management practices, to prevent disease, and to provide surveillance and educational programs for the U.S. animal industry.

Remarks

The development of on-farm animal health quality assurance programs has been extremely important to prevent disease outbreaks and provide education, health programs, biosecurity, and surveillance on farms. These have been developed in several industries; poultry and swine are quite advanced, as well as beef. More recently, the sheep and dairy industries have started programs. Aspects of these programs need to be done under cooperative agreement. Regulatory agencies could provide third party verification.

PRINCIPLE 4b
A dynamic response plan is necessary to control domestic and foreign animal diseases and issues. It should include

- **— enhanced training and education;**
- **— mobilization of adequate supplies, resources, and trained personnel;**
- **— clarification of roles and responsibilities; and**
- **— coordination of the myriad response providers.**

Recommendation

107. Reformat the current disease-specific Emergency Response Guidelines into a single-volume manual similar to the Australian Plan.[7]

Remarks

The Response Committee reviewed the foot-and-mouth (FMD) "Red Book" and individual members queried state, federal, and industry leaders regarding the adequacy of this document. While this was a valuable document outlining FMD response activities in the past, there is a critical need to update, expand, and include this and other guidelines into a single-volume, inclusive guideline for emergency response to FAD. The manual should be continually upgraded and reviewed.

Recommendation

108. Expand APHIS-VS ability to trace and control potentially infected animals or contaminated animal products through cooperative agreements with state animal health agencies.

Remarks

The committee found through discussion with APHIS-VS personnel, Food Safety and Inspection Service (FSIS) personnel, industry, and state officials that in many cases, the information technology needed to trace and control products as well as animals is currently lacking or not well understood. While it appears adequate authority exists within the system, there are not well defined or documented cooperative agreements amongst and between federal agencies and between federal agencies and state agencies. While individual state and other federal agencies appear to have necessary authorities, APHIS must play a lead role in establishing cooperative agreements and clearly outline how these authorities will be used in animal health emergencies.

Recommendation

109. Include strategies to better understand and adhere to legal and regulatory requirements while also advancing the mission of public health; this in order not only to do the best job possible, but also to minimize the potential for legal challenges to response activities.

Remarks

Industry associates interviewed expressed uncertainty as to how the legal system would respond to challenges or appeals to response activities. There is concern, especially among industry and state officials, that court injunctions and other legal constraints could very seriously jeopardize efficient and immediate emergency response activities.

Recommendation

110. Implement a process to annually review and refine the National Response Plan.

Remarks

Recent test exercises reveal the importance of regularly reviewing and updating materials, contact lists, procedures, etc.

Recommendation

111. Assess the Regional Emergency Animal Disease Eradication Organization (READEO) system and take steps to ensure that it is prepared, staffed and funded to fulfill its mission.

Remarks

The READEO system is a critical part of any national response effort. The system, including area veterinarians in charge (AVICs) and veterinary medical officers (VMOs), must adequately support and mesh with incident command systems that will be used in state-level responses. It is vital that READEO staff be adequately trained, and are sufficient in number to operate 24 hours a day, 7 days a week for prolonged periods. The regional READEO system must be critically evaluated to determine if it is sufficient to respond to a large-scale, multi-state response. If the READEO system is not sufficient for a large-scale response, contingency plans must be developed to augment the teams. READEO teams should have adequate, on-going funding to train and prepare for response. Consideration should also be given to providing funding through cooperative agreements with states to develop and maintain emergency response capability.

Recommendation

112. Develop a vaccination strategy for foreign animal diseases (FADs), and provide personnel and supplies to implement the strategy.

Remarks

While the committee acknowledges that a vaccination protocol for FMD exists within APHIS-VS, there is concern relative to the adequacy of the current system to identify vaccinated animals. There is no current record-keeping system to track these animals. Vaccination procedures and options should be thoroughly reviewed and evaluated, including recommendations for various scenarios, prior to an outbreak. The strategy should consider how vaccines will be administered and to what animal herds; the method and timetable for slaughtering (for human consumption) vaccinated animals; how the vaccine area will be determined; and how contract production can be accomplished to provide an adequate supply of vaccine.

Recommendation

113. Extend FADD training opportunities to state, university, industry, and private practitioners. Assure that the training requirement is enforced.

Remarks

Many skilled professionals whose service would be critical in dealing with an outbreak need and want additional foreign animal disease diagnostician (FADD) training. The training should not be limited to the Plum Island two-week FADD course but should be tailored to the level needed by the trainee (e.g., accredited veterinarians). Such training could be offered via satellite, over the Internet, or through other new technologies.

Recommendation

114. Create national personnel pools of emergency responders from the ranks of retired state and federal animal health officials, other government agencies, skilled private practitioners, non-veterinarians with specific skills (slaughterhouse personnel, wardens, wildlife services staff), and appraisers. Re-assess the use of military and reserve veterinarians and support staff as key participants early on in a national emergency response. Utilize veterinarians that work with specific species to teach others the FADs of that species at national, regional, and local meetings.

Remarks

A recent test exercise in Iowa estimated it would take 50,000 people to respond to a major FAD outbreak. Such requirements would soon overwhelm federal and state emergency response capabilities. Utilize veterinarians to work with outbreaks of foreign animal diseases involving only diseases of the species with which they work every day. They could be easily trained on the few species diseases with which they are concerned and could provide training opportunities at their national and regional meetings.

Recommendation

115. Continue working aggressively to integrate the United States Emergency Response Plan System (USERPS) into the Federal Emergency Management Agency (FEMA) Federal Response Plan as quickly as possible. Inclusion could be as either an annex or through development of a new emergency support function.

Remarks

Inclusion of the USERPS in the FEMA Federal Response Plan brings access to this network of supplies and support personnel that would be critical in managing an animal disease outbreak and prevent unnecessary duplication of effort. It would also bring animal health expertise into natural disaster relief efforts more rapidly than at the present time. The committee is aware that efforts are ongoing in this area and encourages continuation to complete this activity as rapidly as possible.

Recommendation

116. Develop a logistical support plan (similar to the Human Health Services' National Pharmaceutical Stockpile[8]) that assures adequate emergency supplies are rapidly available to the field.

117. Fund and support the development of cooperative agreements with individual states for specific response plans and state personnel.

Remarks

Coordination efforts in development of state emergency plans have occurred. However, no specific cooperative agreements appear to exist that document coordination and seamless response activities.

APHIS-VS has initiated a competitive grants program to assist in implementation of state emergency response plans with initial awards announced in October 2001. Asking state regulating authorities to write grant applications may be an effective method to fund state development of innovative emergency response plans, however, state animal health officials expressed concern that competitive grants do not assure provision for an equitable and comprehensive response capability. Additional funding must be provided to offer direct assistance to state emergency programs, possibly through cooperative agreements for emergency response activities.

APHIS-VS plans to hire additional staff to work with states in implementation of state plans should move forward as rapidly as possible. Funding may be needed to hire state personnel as well.

PRINCIPLE 4c

A state of the art infrastructure for a federal/state diagnostic laboratory system is crucial to support response actions for all animal health events, from routine surveillance monitoring to large-scale outbreaks.

Recommendation

118. Define roles and responsibilities of federal and state laboratories in the national laboratory infrastructure, including roles in FAD testing.

Remarks

It is abundantly clear from accounts of veterinarians returning from assisting with the British FMD outbreak that there were unmet needs for laboratory assistance. Throughout the United States, laboratory capabilities exist which could contribute to an emergency effort should there be a foreign disease incursion.

A national strategy should be developed for animal health diagnostic laboratory service that would include the National Veterinary Services Laboratories (NVSL) at Ames, Iowa, and Plum Island, New York, state, and university laboratories. State diagnostic labs currently have no formal role in foreign animal disease preparedness despite representing a significant intellectual and physical resource in an era when federal resources are shrinking exponentially. With the ongoing technology explosion and current resource limitations, it is no longer reasonable to expect one laboratory system such as NVSL to provide support across the entire animal health spectrum. Expertise associated with state labs should become part of the national strategy and a resource for dealing with the various situations. This would free NVSL personnel to concentrate on those entities for which only NVSL can and is uniquely qualified to provide diagnostic services. In planning such a strategy, it would be important to involve various groups from APHIS and the diagnostic community including AAVLD.

Recommendation

119. Develop and implement a quality assurance and control system for both federal and state laboratories that meets or exceeds international standards. Maintain and disseminate an active database of laboratories meeting these standards.

Remarks

NVSL should assume a significant role in oversight of a national standardization of laboratory procedures. This should be done in cooperation with the AAVLD. It is important that this standardization include more than just the current program and foreign animal diseases. There is a need to have standardized laboratory procedures for many of the domestic diseases. For the users of diagnostic laboratory services, standardization would provide consistency in results and would ensure accurate laboratory results are used for decision making.

NVSL should conduct an overall review of proficiency testing needs and schedules. To provide adequate leadership in this area, NVSL must also demonstrate that they are capable of that leadership role. One way to accomplish this task is to participate in proficiency testing for the many different assays they perform. Since one of the tasks assigned to the NVSL staff is to produce and monitor certification testing procedures for the state, university, and private labs for regulatory disease programs, it is essential to develop and effectively utilize sound internal assessment programs. It is essential that NVSL be as good as, if not better than, the top university and state diagnostic laboratories. In order to maintain this role as leader, it is important that the NVSL staff recognize the need to take and perform well on proficiency tests. Proficiency tests will be an integral part of a quality program such as outlined by Office International des Epizooties (OIE) or ISO 17025, which are becoming the international standards for laboratory accreditation.

Recommendation

120. Rectify Foreign Animal Disease Diagnostic Laboratory (FADDL) staffing and salary shortfalls.

Remarks

Devote immediate attention to FADDL staffing and salary shortfalls. A prior review characterized FADDL laboratory staffing (22 positions) as "highly dedicated, committed people, as evidenced by the devotion to individual functions and talents," while another stated "there is concern that the enormous task placed on 22 staff allocated by APHIS to FADDL to address the number of foreign animal disease threats is unrealistic." Currently, FADDL has 18 approved positions, down from the previously mentioned 22 positions and significantly down from the 35 positions in 1985. Of six technician positions, only two are currently filled and those individuals have 1.5 to 2 years experience. Trained FADDL technical individuals are continually attracted to the private sector at considerably higher salaries, and recruitment of VMOs is challenging. Current FADDL staffing issues are serious and demand immediate attention. Is there any higher priority for APHIS than to be able to provide accurate, timely diagnosis for potential foreign animal disease? This must be recognized as an emergency and all means (e.g., differential salary, incentives, etc.) must be exhausted to remedy FADDL staffing issues.

Succession planning needs to be done, for scientists as well as managers. Options need to be explored in recruiting and hiring well-qualified scientists and managers. Continuing education, integral to succession planning, could include academic training (both undergraduate and graduate levels), technical training, etc., as appropriate. Maintenance of motivated and creative personnel is crucial for NVSL to improve and maintain its national leadership role.

Significant effort should be devoted to developing a strategy to allow more staff development activities. While NVSL scientists are very interested in developmental activities, it was apparent that there was little time or few resources available for this type of scientific activity, and it was given a low priority. Developmental activities are very important to positioning NVSL as a technological leader as well as continuing to attract and challenge needed highly qualified scientific staff.

Recommendation

121. Utilize previous National Veterinary Services Laboratories (NVSL) reviews in conducting a needs assessment regarding emergency diagnosis and applied research. Implement a plan that supports the immediate and long-term needs of a federal/state diagnostic laboratory system.

Remarks

Implement a plan that supports the immediate and long-term needs of the National Laboratory System (in consideration of 1998 review of FADDL and NVSL 2000 Secretary Report on Plum Island). The NVSL diagnostic facilities have maintained animal isolation facilities that allow the biosecure inoculation of animals with suspected foreign animal disease agents or agents suspected of producing emerging diseases within the borders of the U.S. There are virtually no other laboratories within the United States that can perform these activities and therefore, the U.S. relies heavily on the NVSL laboratories at Ames and Plum Island. The value to the biosecurity of the nation's animal populations and the ability to rapidly test suspected pathogens in animal subjects has never been as important as it is now, and every effort must be made to improve and maintain the full service capabilities of NVSL to meet these needs. However, one review of the facilities at Plum Island found "the animal facilities appeared to be somewhat inadequate and out of date. The deficiencies appeared to be in facilities for the maintenance of animals, and the working environment for staff in caring for the animals and conducting scientific program activities."

Recommendation

122. Improve customer service in NVSL laboratories.

Remarks

Customer service orientation should be provided for all NVSL employees. Informal surveys indicate that there are areas of excellence, but there are certain areas in need of improvement.

PRINCIPLE 4d

Clear lines of authority and clear rules for compensation will assure smooth operations of emergency responses.

The FMD outbreak in the United Kingdom confirmed the need for APHIS-VS to have a clear understanding of emergency response, financial resources and line of authority. Changes continue to take place and must be clearly communicated.

Recommendation

123. Define specific state and federal legal authorities for emergency actions, and lines of authority from the Secretary of Agriculture to the READEO directors.

124. Ensure adequate and immediate funding for response activities, including product and animal destruction.

125. Define specific responsibilities for Centers for Epidemiology and Animal Health (CEAH) and APHIS staff; field and operations support; wildlife and APHIS-VS-Emergency Programs, and READEO staff.

126. Communicate all highlighted issues, principles, and authorities to all state animal health authorities and livestock industry groups.

Foot-and-mouth disease sign, Broadwoodkelly, Devon UK 2001 *© Peter Dean*

PRINCIPLE 4e

Modern effective emergency response depends upon a world-class, integrated, and comprehensive identification and data communication management system that includes both animal and premises identification, and both international and domestic animal disease information.

Recommendation

127. Expand and maintain adequate information technology (IT) infrastructure and support staff.

Recommendation

128. Develop and maintain a comprehensive animal identification system that takes into consideration state and regional animal production methods.

Remarks

The system may incorporate premises and individual animal identification and recording of animal movements. It should be built after consideration of systems already in place at FEMA and State Emergency Management Agencies (SEMAs) so that redundancy is avoided and seamless integration is easily achieved. The Lotus Notes suite is a perfect example by which no state or industry group can utilize files without converting them.

Recommendation

129. Expand the web-enabled national animal database supported in each state with on-going Geographic Information System (GIS) maintenance by state and federal staff. The system should utilize other sources of GIS, and should be augmented by an early response team of APHIS geographers who can mobilize at the onset of an outbreak. The director of APHIS-VS should implement GIS expertise at the APHIS Area Office.

Remarks

Current issues at CEAH are not unique to APHIS-VS but clearly underscore several agency wide problems. The Center for Animal Disease Information and Analysis (CADIA) contains the GIS section for APHIS-VS. Although all agree that the use of and need for GIS systems in the field is important for immediate response capability, fewer than 20 APHIS-VS personnel nationwide are adequately trained to actually respond as needed. Plans by the GIS section to have a web-enabled map server are in the prototype phase. The map server has demonstrated web-enabled GIS capabilities. However, current server capacity and T-1 lines are entirely inadequate for even a test exercise.

At this point, field equipment will need to be utilized for the immediate future for an outbreak incident. On that same line, more field staff need to be adequately trained to support an incident. GIS systems are extremely memory and speed demanding, and current CEAH equipment is not completely adequate. IT staffing needs and equipment requirements must be addressed to directly support this section. Plans also need to be in place to provide IT support staff at an outbreak.

Finally, the GIS section needs to procure national mapping data along with needed licenses to handle any outbreak anywhere in the U.S. This data should be made available to appropriate area offices on a compact disc format until such time that a web-enabled server is up and running with a proven track record. To achieve these goals, a significant commitment by CEAH as well as the AVIC at each area office is needed.

Epi Info (a database, GIS software package) was used during the NIMBY exercise and found to be inadequate. The fact that this was not a priority issue for CEAH and APHIS-VS staff at the time is probably a result of the failure to fill leadership positions at the CEAH in a timely manner. The Outbreak Response Software, currently being developed, is centered on Lotus Notes and will be web enabled. Plans are to have the full function beta version operational soon.

Recommendations for evaluation of software:

- Individuals within APHIS-VS with experience in prior eradication efforts should evaluate this software for practical usage by field staff during an incident;
- Software should be evaluated by independent database professionals in order to ascertain if it meets the needs of APHIS-VS and collaborative agencies; and
- A test exercise should be arranged as early as possible to evaluate the program and begin the debug process.

It is encouraging that a broad-based working group has been formed to address many of these data management issues. However, it will take time, money, and resources to accomplish this project.

Recommendation

130. Incorporate the analysis of epidemiologic information and resource management. Make appropriate training available to state and federal animal health officials for the purpose of animal health emergency response. Ensure that software and hardware resources meet program needs, and are compatible with those used by the states. Maintain confidentiality of sensitive information.

PRINCIPLE 4f

Wildlife and exotic species management is a critical component of thorough animal disease response plans.

Recommendation

131. Determine and respond to the risk that wildlife presents in an animal health emergency. Direct appropriate agencies to eliminate or reduce wildlife-associated risks.

Remarks

Wildlife biologists and managers bring special expertise to animal health emergency management, and they should be actively involved in the response to protect both domestic animal industries and wildlife resources. Additionally, state wildlife management agencies have regulatory authority over most native wildlife, demographic information on wildlife populations, and the infrastructure (trained personnel, vehicles, specialized equipment, etc.) to deal with the wildlife aspects of a response. APHIS should provide technical support and training to agencies that could be involved in a response, including all state wildlife management agencies, the U.S. Fish and Wildlife Service, the National Park Service, and the U.S. Geological Survey.

Recommendation

132. Cooperate with, expand the involvement of, and provide training to wildlife management agencies in animal health emergency planning and response. Develop a joint state-federal training program.

133. Clarify the role of APHIS Wildlife Services in response to an animal health emergency.

Remarks

APHIS' Wildlife Services (WS) has the infrastructure and expertise to assist with wildlife-related aspects of a response. Personnel from WS are skilled in methods to reduce detrimental impact of wild animals on agriculture through hazing, depopulation, habitat alteration, and other techniques. The wildlife biologists of WS can more readily interact with state wildlife resource agencies than APHIS' veterinary medical officers and several states look to WS for assistance with collection/depopulation of wildlife in an emergency

response. However, it must be recognized that states maintain regulatory authority over native, non-threatened, non-migratory wildlife under ordinary circumstances, and WS can capture, kill, or handle these animals only under state-issued permits.

Recommendation

134. Clarify authority regarding wildlife-related aspects of animal disease control and health emergency response.

Remarks

There is potential for conflicts regarding authority to arise between animal health and wildlife management agencies when cooperative policies are not clearly defined or when open communication is not routinely practiced. State wildlife agencies have regulatory authority over most native wildlife species. Exceptions include migratory birds and threatened/endangered species regulated by the U.S. Fish and Wildlife Service and wildlife on lands under the authority of the National Park Service, Native American tribal agencies, etc. Since the early 1980s, Memoranda of Understanding (MOU) regarding wildlife resource agency participation in animal disease emergencies have existed between APHIS and the wildlife management agencies of all states as well as the U.S. Fish and Wildlife Service. However, these documents should be updated and reconfirmed to reflect the increased involvement of state animal health and emergency management agencies in an animal health emergency response.

An alternative policy regarding authority is for another organization, such as the state animal health or emergency management agency or APHIS, to usurp the regulatory authority of the wildlife resource agency, particularly after the formal declaration of an emergency. In some states, the state veterinarian currently is empowered to deal with any animal species on any private or publicly owned property following declaration of emergency. This policy can lead to conflict unless a highly cooperative approach is taken. The state wildlife resource agency should play a major role in planning and implementing the wildlife aspects of a response for several reasons:

- The agency's mission is to manage this resource;
- The agency has demographic and biological information regarding native wildlife populations; and
- The agency employs personnel with the expertise to deal with these animals.

Recommendation

135. Consolidate data on wildlife demographics and diseases.

Remarks

Information regarding the distribution of wildlife populations typically is assembled on a statewide basis. In some instances, national distribution maps have been constructed for selected species. In the 1980s, maps depicting the national distribution of wild cloven-hoofed animals were compiled and distributed by the Southeastern Cooperative Wildlife Disease Study (SCWDS) at the request of APHIS. Maps depicting feral swine distribution were updated for selected states in the 1990s, and there is a need for current information on distribution of wildlife that could be involved in animal health emergencies. Access to information regarding wildlife population distribution will be essential in an emergency response, and involvement of the state wildlife resource agencies in the response is the best way to ensure this access in the absence of a national database.

National databases currently are available for selected wildlife diseases such as rabies. Additional diseases that are monitored annually on a nationwide basis include hemorrhagic disease and chronic wasting disease of cervids. Information regarding the

occurrence of OIE List A, OIE List B, and "Wildlife List" diseases is assembled each year by SCWDS for inclusion in the report of the OIE Wildlife Disease Working Group. These three lists include the diseases targeted for monitoring in the APHIS-VS Strategic Plan dated March 2000. Additionally, organizations including state and federal wildlife management agencies and state diagnostic laboratories accumulate information on the occurrence of selected diseases in wild animals. This information should be compiled for use by animal health and wildlife management authorities.

Recommendation

136. Define and prioritize applied research needs to address wildlife and exotic species issues in animal health emergencies.

Remarks

Very little scientific information is available regarding the potential for wildlife to serve as reservoirs or disseminators of disease in an animal health emergency. For example, plans to deal with the wildlife aspects of foot-and-mouth (FMD) disease in the U.S. are largely based on the results of experimental exposure of 10 white-tailed deer to FMD virus in the early 1970s, as well as the presumed presence of FMD and subsequent culling of more than 22,000 wild deer in California in the 1920s. This paucity of information can be attributed to the lack of significant wildlife affected in past emergencies. However, for the purposes of planning and implementing an efficient response, more information is necessary regarding the response of wildlife species to selected disease agents. Areas of importance include specific and sensitive diagnostic tests to detect the disease agent in non-domestic species, persistence of infection, transmissibility of the disease agent among wild and domestic animals, population densities at which disease transmission becomes unlikely, and effective methods to preclude contact between wildlife and livestock in order to prevent disease transmission in either direction.

PRINCIPLE 4g
The best response programs are supported by relevant applied research.

Recommendation

137. Direct APHIS-VS and ARS to prioritize and develop plans for completion of needed applied research.

Remarks

Identify, prioritize, and communicate applied research needed to enhance response efforts. Working together, APHIS-VS and the Agricultural Research Service (ARS) should prioritize and develop plans for completion of needed applied research.

It is unclear how applied research priorities for animal health projects are established between ARS and APHIS. With current staffing there is not adequate time to meet diagnostic needs or respond to and incorporate state-of-the-art technology. It appears that there should be a more effective interaction between ARS scientists developing diagnostics, performing needed applied research, and transferring them to APHIS. This must be fostered throughout both ARS and APHIS.

A previous review stated, "It is critical that a formal process be developed to identify and prioritize applied research activities and programs that include APHIS and other stakeholders. The mission and priorities that have been developed need to be reviewed annually by the administrative staff to assure that the national needs are being met." Further, "the overall driving force for the research program must be based on what is needed to protect U.S. animal agriculture from foreign animal diseases and to minimize the impact of the incursion of a foreign animal disease." This same review team

"expressed concern on the lack of openness of the process for selection of research priorities." This concern is also shared by this review based on contemporary experiences.

Recommendation

138. Continue a system to arbitrate disagreements and limitations between APHIS-VS and ARS.

139. Reverse the serious erosion of animal health applied research funding that has occurred in past years.

PRINCIPLE 4h
Effective communication is a high priority at all levels of response and should be supported with adequate funding and staff.

Recommendation

140. Improve internal communications within APHIS, and encourage routine communication between CEAH, Animal Health Program headquarters, and the Secretary of Agriculture's office.

Remarks

Throughout the committee's deliberations, reviews, interviews, and visits, it was apparent that there remains a serious lack of communication within APHIS-VS between APHIS-VS staff located at Riverdale, staff at the regional and area offices, and state animal health officials.

Recommendation

141. Establish orientation and mentoring programs for new APHIS employees to enhance awareness of other ongoing APHIS programs and the history of the agency and its programs.

Remarks

The committee finds that while many program decisions are made at the headquarters level, the use of field personnel, state and industry input when utilized, results in more effective programs.

Recommendation

142. Strengthen communication and enhance working relationships between AVICs and state veterinarians.

Remarks

The relationship between the area veterinarian in charge (AVIC) and the state veterinarian is critical to the safeguarding process. APHIS should foster these working relationships and monitor their effectiveness. The critical nature of this relationship became clear during the United Kingdom's FMD outbreak. Some state veterinarians were well informed about the outbreak and APHIS-VS' planning efforts, while others were in the dark because the AVIC and the state veterinarians were not communicating well. This is hardly a new issue. A review done in 1993 by a VMO as part of a LEAD project indicated that some AVICs and state veterinarians do not communicate. Two easily implemented changes to improve this problem are: incorporate the state veterinarian into the annual performance review process of the AVIC and solicit state veterinarian input into the selection process for the AVIC. This will encourage the state veterinarian to become involved with the process and encourage AVICs to routinely visit with their state veterinarian.

Recommendation

143. Strengthen communication on occurrences of emergency animal disease or condition.

Remarks

Animal agriculture accounts for approximately $100 billion in annual revenue for America's farmers and ranchers. In the event of a suspected or actual animal disease outbreak, communications relative to the event can have a significant negative impact on markets and, through them, producers. Beef and pork producer groups both stressed to the committee the importance of discussion of communication strategies with industry prior to the occurrence of an animal health emergency. It is critical to plan for communications strategies that convey the needed information to the public in a timely manner, but do it in a manner that will limit market disruption to the greatest extent possible. Events in Europe relative to bovine spongiform encephalopathy (BSE) and FMD, as well as the situation in North Carolina with a FMD-suspect swine herd, highlighted the importance of such planning.

PRINCIPLE 4i

Visionary and sustained leadership should be fostered to encourage new initiatives. These initiatives should expand the APHIS role in activities such as food safety, bioterrorism prevention, and regulatory and emergency response.

Recommendation

144. Encourage routine visits to the field in order to observe needs and opportunities for program enhancement. Relocate key positions traditionally maintained at national headquarters to be closer to field operations; this, to improve response efforts and attract talented individuals who may not wish to relocate to Washington, D.C. Actively work with partners to clarify and solidify working relationships. Identify new areas of cooperation, defining roles within them.

Remarks

Implementation of change, by its nature, requires visionary and sustained leadership. Over the past 20 years funding and full-time-equivalent staffing levels for APHIS-VS have deteriorated significantly. Innovative leadership will be required to reverse this trend. Significant increases in funding have been authorized in recent years for food safety and bioterrorism. The recent outbreak of foot-and-mouth disease in the United Kingdom has increased public awareness of the need for funding for emergency management. APHIS-VS leadership must assure that the agency is recognized as an important, active participant in each of these areas and that this status is used to leverage additional funding for the agency to fulfill it roles in these areas.

One challenge to sustained leadership for specific program areas has been the difficulty in attracting and retaining talented staff. In most cases it appears to have been required that, if not already located at the National Animal Health Program headquarters in Riverdale, Maryland, they relocate there. This policy needs to be reevaluated. It is recommended that key positions be given the opportunity to locate at appropriate field locations. This will have the advantage of increasing the ability to attract and retain quality staff. It can also help to improve response by having these individuals closer to field operations. The use of modern communications tools can help to minimize any perceived administrative challenges in these situations. No recommendation is made relative to specific positions to handle this manner, because this should be a management decision. Decisions need to be made dependent on the individuals and specific circumstances involved with each position. It is a tool that "visionary" leadership should be allowed to use to enhance the ability of the agency to attract, retain, and most effectively utilize the most qualified individuals in their programs.

In addition to potentially locating key positions in the field, APHIS-VS leadership is encouraged to make routine visits to field locations. This will enhance communications between headquarters and the field. It will also allow a better assessment of program needs and opportunities.

Previous reports and plans reviewed by the committee addressed this principle to varying degrees. One of the areas of potential vulnerability identified in the Quadrilateral Review was "Central Leadership." It noted that "[s]trong central leadership is essential in the successful execution of an emergency management plan." Recommendations focused on a clear definition of roles.

Similarly Action Guideline #1 from the National Animal Health Emergency Management System Steering Committee is to "Strengthen Partnerships and Networks." The stated objective is to "improve the working relationships within and between federal agencies, state agencies, animal industries, and private veterinary practitioners."

Specific action items in this area include working more closely with FEMA to:

- Explore formal agreements as part of the Federal Response Plan;
- Work more closely with emergency management officials in each state;
- Provide expertise that can support response to natural and man-made disasters; and
- "Work with the Department of Defense, the Federal Bureau of Investigation, the Central Intelligence Agency and industry officials to be better prepared to minimize the risk from and respond to potential threats."

The "Recommended Follow-up Actions to the NIMBY Exercise" calls for a revising of "the structure of the emergency response organizations" (currently known as READEOs and the EMOC). The recommended action was to adopt the Incident Command System advocated by FEMA.

Each of these items support the principle requiring visionary and sustained leadership to be successfully implemented.

PRINCIPLE 4j
A national veterinary accreditation program is needed to bolster emergency response systems and to improve preparations.

Recommendation

145. Redesign and upgrade the national veterinary accreditation program to include
— standardized national training and reinstatement of the examination;
— periodic revision of the accreditation manual;

Remarks

The current national veterinary accreditation program is clearly inadequate to safeguarding needs. Utilization of trained, qualified, accredited veterinarians provides an efficient cost effective mechanism for the qualification and certification of animals for interstate and international commerce. Additionally trained accredited private veterinarians are the nation's first line of defense for identifying the presence of emerging or exotic diseases. These veterinarians also comprise and important cadre of trained persons to aid in response to an emergency disease. It is imperative that redesign and upgrading of the national veterinary accreditation program be accomplished expeditiously.

— periodic communication with all accredited veterinarians to emphasize their important role in certification of animal movement, reporting, and response to unusual animal diseases or conditions; and
— mandatory training to maintain accreditation.

Recommendation
146. Continue development of two levels of accreditation: Large Animal (Category 1) & Non-large Animal (Category 2). Make paramount the emphasis on FAD diagnosis, containment, reporting, and response with state and federal agencies, along with continuing education for the Large Animal classification. Allow Category 2 veterinarians to issue only small animal health certificates.

147. Expand the accreditation program to be the core for emergency preparedness and the response plan.

PRINCIPLE 4k
A comprehensive indemnity plan and a clear-cut condemnation process are vital to the success of and industry support for any response plan.

Recommendation
148. Clearly define, establish, and communicate a comprehensive indemnity plan.

Remarks
The indemnity plan should provide funding for death or destruction of infected and non-infected animals, including affected non-target animals on designated premises. The plan should also include compensation for loss of product, such as milk, eggs, and feed/hay. In some cases, non-target animals, such as chickens, may suffer losses due to a quarantine that prohibits movement to slaughter, or to a contract layer farm for a period that exceeds animal welfare standards or production efficiency.

Recommendation
149. Clearly define and establish a seizure process.

Remarks
In the most recent outbreak of FMD in the United Kingdom and the outbreak of highly pathogenic avian influenza in the Pennsylvania, the lack of officially recognized laboratories required that the diagnosis be made on clinical signs and gross lesions. The USDA must either support, train, and check test many university and state laboratories to do this work in an emergency or decide that condemnations be made without laboratory confirmation.

Recommendation

150. Ensure adequate funding for both of the above, and define funding responsibility so that it is a part of the response plan and not a decision to be made during a crisis.

Remarks

It is important to integrate the funding responsibility of the indemnity plan so that it provides for early intervention by the animal industry and state government by repayment of expenses incurred prior to the declaration of the emergency.

Recommendation

151. Provide a process for industry input and attendant guidelines for FAD outbreak response.

Remarks

It is essential that animal industries support the response to a foreign animal disease outbreak. In most cases, early recognition and response will begin with animal producers and/or their veterinarians.

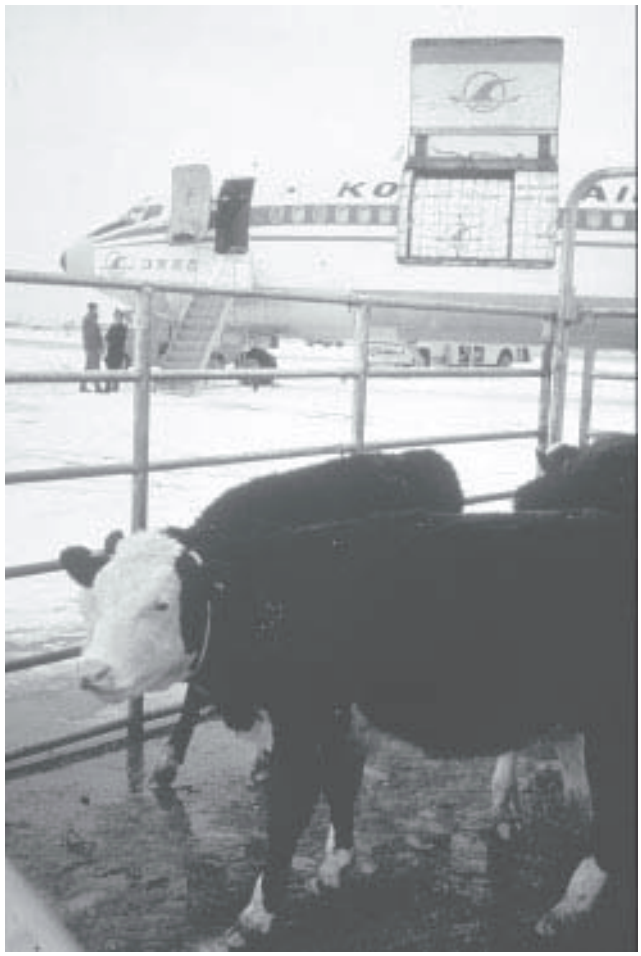
Recommendation

152. Continue to develop guidelines and cultivate legal authority for humane euthanasia and carcass disposal in order to maintain biosecurity, and to prevent spread of infectious agents.

Remarks

Present problems dealing with "prion diseases," BSE, etc., and the FMD outbreak in the United Kingdom, demonstrates the need for continued guidelines and legal authority at all levels of government pertaining to humane euthanasia and carcass disposal.

The committee also noted the importance of implementing the APHIS-ARS Master Plan for Facility Consolidation & Modernization of the Ames, Iowa, facility. The consolidation of the National Animal Disease Center, the NVSL, and the Center for Veterinary Biologics (CVB) will emphasize the essential linkage between applied research, diagnostics, and regulations required to support animal agriculture protection, production, and trade. Consolidation should enhance synergy and collaboration among a critical mass of scientists necessary to stimulate the creativity that will lead to solutions for emerging and future problems. Doing this at the Ames location takes advantage of the extensive existing infrastructure.



Notes

1. APHIS-ARS Master Plan for Facility Consolidation and Modernization, Modernization Plan for National Veterinary Services Laboratories—A USDA proposal to build a new facility in Ames, Iowa, to meet national needs for animal health research, diagnosis and product evaluation, and to replace existing facilities that are antiquated and inefficient. The proposed facility would modernize and update USDA facilities in Ames, Iowa, for the ARS National Animal Disease Center (NADC), APHIS National Veterinary Services Laboratories (NVSL) and the APHIS Center for Veterinary Biologics. Additional information is available on the Internet at http://www.nadc.ars.usda.gov/MasterPlanInfo/index.asp. The Modernization Plan for Plum Island, New York, provides for continued maintenance and upgrading of this facility.

2. Many of the animal disease control and eradication programs had their roots in protection of public health and they continue in this role, in addition to their contribution to animal health and animal agriculture production efficiency. While there is no comprehensive surveillance at the production level to address potential public health issues, APHIS-VS has gathered limited on-farm food safety information during National Animal Health Monitoring System studies, and has provided samples for the National Antimicrobial Resistance Monitoring System. Specific foreign animal disease surveillance initiatives for diseases such as bovine spongiform encephalopathy, classical swine fever, and avian influenza have been developed. The National Animal Health Reporting System provides a mechanism to report specified foreign animal diseases by participating states.

3. List adapted from *Swine Futures Project Report*, 1999, USDA-APHIS, p. 390.

4. *Emerging Animal Health Issues System*, July 2000, USDA-APHIS.

5. The Centers for Disease Control Division of Laboratory Systems—The Centers for Disease Control Division of Laboratory Systems is a surveillance network comprised of laboratory scientists, statisticians, computer specialists, physicians, and administrative staff. The goal of the network is to improve the quality of laboratory practices by providing global leadership and fostering partnerships and collaborations, to conduct research and surveillance, disseminate information, provide training and education, develop and promote standards and guidelines, and assess technologies and their applications in support of the continuous improvement of the public's health.

Harvesting catfish from the Delta Pride Catfish farms

6. Los Angeles Airport (LAX) checkpoint procedures—A series of procedures for international passengers disembarking from flights to voluntarily abide by USDA-APHIS regulations on the importation of fruits, vegetables, and animal products–followed by formal inspection by beagles, USDA officers, and x-ray devices. The full document can be obtained by contacting the Los Angeles USDA port director at (310) 725-1900.

7. The Australian Veterinary Emergency Plan (AUSVETPLAN)—A series of technical response plans that describe the proposed Australian approach to an exotic disease incursion. The documents provide guidance based on sound analysis, linking policy, strategies, implementation, coordination and emergency-management plans. Additional information is available on the Internet at http://www.aahc.com.au/ausvetplan/index.htm.

8. Health and Human Services National Pharmaceutical Stockpile—A rapid response program designed to provide special aid through delivery of supplies to support medical personnel at disaster sites. There are eight "12-Hour Rush Packages" that are maintained in pre-packaged, pre-positioned caches in secure storage facilities around the country. The packages are designed to be deliverable to any area of the continental United States within 12 hours of deployment, with substantial supplies to address a wide variety of potential needs; pharmaceuticals, intravenous supplies, airway supplies, emergency medication, bandages and dressings, and other materials to cover a spectrum of medical needs. Additional information is available on the Internet at http://www.hhs.gov/.

Appendix I: Principles and Recommendations

DOMESTIC DETECTION AND SURVEILLANCE COMMITTEE

PRINCIPLE 1a

A comprehensive, coordinated, integrated surveillance system is the foundation for animal health, public health, food safety, and environmental health.

Recommendations

1 Create a national surveillance director leadership position with responsibility for the NSS.

2 Utilize a Surveillance Steering Committee to provide guidance, priorities, feedback, and evaluation to the NSS.

3 Encourage use of technological advancements to meet evolving NSS needs.

4 Develop ongoing quality assurance and continuous improvement plans for evaluation of the effectiveness of the NSS.

5 Secure the appropriate authority for access to sampling and information needed to implement the NSS.

6 Communicate surveillance findings to stakeholders and determine if surveillance meets stakeholder needs.

PRINCIPLE 1b

The NSS must ensure early detection and response to emerging diseases, foreign animal diseases, and endemic diseases.

Recommendations

7 Ensure the design of the NSS provides early detection of emerging diseases to allow for an appropriate and timely response.

8 Ensure that the design of the NSS incorporates foreign animal disease surveillance needs.

9 Ensure the design of the NSS incorporates endemic disease surveillance needs.

PRINCIPLE 1c

The NSS must meet international surveillance requirements.

Recommendations

10 Expand participation in international animal health discussions and activities.

11 Exchange ideas and personnel with other countries in surveillance methodology.

PRINCIPLE 1d

NSS cannot be implemented by APHIS-VS alone. Partnerships with states, animal industries, veterinary practitioners, universities, Office International des Epizooties (OIE) reference centers, and diagnostic laboratories are essential.

Recommendations

12 Ensure the design and implementation of the NSS includes state governments, universities, and commercial diagnostic laboratories. Explore implementation of a national laboratory system utilizing a regional laboratory network similar to the Centers for Disease Control and Prevention model. Create opportunities for innovative approaches for surveillance with surveillance partners and allied industries.

13 Seek opportunities to utilize resources of other federal agencies to enhance the NSS.

14 Create partners and advocates for the NSS by developing an understanding of its value with participants, users, and beneficiaries.

PRINCIPLE 1e

Surveillance is critical to the mission of APHIS-VS. It is the foundation for APHIS-VS activities including domestic disease control and eradication programs, emergency preparedness and response, and trade.

Recommendations

15 Create a common vision and sense of urgency for surveillance within APHIS-VS personnel.

PRINCIPLE 1f

APHIS-VS has the responsibility to provide leadership for areas of surveillance of national interest.

Recommendations

16 Provide a framework for the NSS including standardization, identification, information management (data capture, description and analysis, interpretation, and dissemination and feedback), and technical resources.

PRINCIPLE 1g
The NSS requires world-class national diagnostic laboratories.

Recommendations

17 Define the role of the NVSL as the reference laboratory in support of the NSS.

18 Upgrade the capabilities of the National Veterinary Services Laboratories and the Center for Veterinary Biologics for their critical role in the surveillance system.

PRINCIPLE 1h
The NSS requires world-class epidemiological expertise.

Recommendations

19 Expand the role of the Centers for Epidemiology and Animal Health (CEAH) as the epidemiologic reference center in the NSS.

20 Improve the coordination of the CEAH, animal health programs, and area, regional, and state epidemiological resources in support of the NSS.

PRINCIPLE 1i
Applied research is essential to the development and maintenance of the NSS.

Recommendations

21 Meet applied research and development needs for the scientifically based NSS.

EXCLUSION COMMITTEE

PRINCIPLE 2a
In order to achieve effective exclusion, the U.S. must adopt a unified approach that balances plant and animal issues, and restores coherence to the fractured system now in place.

Recommendations

22 Form a new, integrated Agricultural Inspection and Quarantine (AIQ) unit of both animal and plant professionals.

23 Establish a permanent Quality Assurance (QA) unit with the expertise to validate the outcomes of inspection and interdiction efforts; and provide leadership in continuous quality improvement.

24 Whenever possible, co-locate AIQ port offices with all other federal inspection services (e.g., U.S. Customs, and the Immigration and Naturalization Service).

25 Raise the priority of postal inspection to the same level as that of passenger baggage, cargo, and animal quarantine.

26 Fully fund and support the APHIS Smuggling Interdiction and Trade Compliance (SITC) unit.

27 Include area veterinarians in charge (AVICs) and state veterinarians in exclusion activities conducted at the state level.

PRINCIPLE 2b
In order to prevent the incursion of foreign animal diseases into the U.S., the trade environment for animals and animal products must include a flexible, fast-responding, integrated effort with the participation of federal and state agencies, and industry.

Recommendations

28 Animal Health Program headquarters should
— make more frequent staff visits to the field; or
— relocate staff closer to front line operations (preferably to the state level; secondarily, to regional offices).

29 Establish routine dissemination to both managers and field staff in all programs of information on international animal health status, import permits, and port activities.

30 Form a new Animal Health Information Coordination and Analysis (AHICA) unit.

31 Drastically expand USDA information on international animal health status to include sources such as the Internet, scientific publications, market reports, and federal agencies such as the National Security Administration, the Foreign Agricultural Service (FAS), and the U.S. State Department.

32 Establish e-mail discussion lists to help unify operational procedures at ports for AIQ.

33 Provide technical support 24 hours a day, 7 days a week for animals and animal products, so that all port arrival times are covered.

34 Promote cooperation between USDA and the Customs Service to revise the passenger and international mail declaration form to more effectively identify the need for in-depth inspections of arrivals.

35 Provide input into the development of the Customs Service's new Automated Commercial Environment (ACE) to ensure it provides the level of information necessary to facilitate exclusion activities.

36 Make the Treasury Enforcement Communications System (TECS) accessible and subject to mandatory update; its usage to identify high-risk targets should be required of USDA personnel at all ports.

37 Direct Centers for Veterinary Biologics (CVB) to provide improved and expedited responses to port authorities, brokers, and similarly situated parties.

PRINCIPLE 2c

APHIS exclusion efforts must encourage and reward innovation; and must be decentralized so that every level has appropriate authority and responsibility for its work.

Recommendations

38 Airport Procedures:

— Model procedures after those in use at the international passenger arrival checkpoint at the Los Angeles International Airport (LAX). Highlights include expanded inspection authority and the use of amnesty bins and signage in multiple languages that list penalties for violation.

— Employ advanced x-ray equipment and/or canine teams along baggage conveyor belts, and employ teams of two or more inspectors to expand, speed up and improve baggage scanning.

39 Increase canine inspection teams at passenger baggage, cargo, and mail inspection facilities so that teams are available for arrivals occurring at any time.

40 Mount a public information campaign on penalties for illegal importation, and methods of inspection.

41 Employ the management practices of the Newburgh, New York, AIQ facility for all animal facilities.

42 Ensure that private contractors engaged in off-loading animals or cleaning and disinfecting conveyances at ports employ biosecurity practices at least equal to those of APHIS-VS.

43 Ensure that birds, animals, and animal products that do not fully meet the import requirements for entry into the U.S. are refused entry.

44 Establish a formal connection between APHIS-VS and International Services (IS) to ensure that countries have the necessary information to meet U.S. import policies.

45 Empower port directors to resolve individual problems with imports.

46 Ensure that APHIS-VS veterinary medical officers (VMOs) at animal and bird import quarantine facilities have appropriate clinical training and skills. Minimize use of private veterinarians within quarantine facilities, and ensure strict enforcement of biosecurity measures when the employment of such individuals occurs.

47 Expand risk assessment to be a standard part of all exclusion operations.

48 Increase assistance in disease diagnostics, monitoring, surveillance, and control/eradication programs to foreign countries with animal disease problems that threaten the U.S.

49 Incorporate the tracking and inspection of cruise ships, private boats, and aircraft arriving from foreign countries into the work functions of APHIS, in coordination with other federal inspection services.

50 Enforce the assessment of civil penalties provided by law for passengers, cargo, and mail.

51 Revise and improve biosecurity procedures for other than slaughter livestock at land border crossings. Permit release of live animals, regardless of species, only after inspection by a VMO.

52 Direct APHIS-VS to pursue an equivalency agreement with Canada so that cattle import conveyances are inspected and sealed at the point of origin, and not unloaded at the U.S. border. Continue pursuit of a North American biosecurity plan in partnership with Canada and Mexico; this in order to ensure the equivalency of exclusion efforts in all three countries.

53 Establish an objective, risk-based process to periodically review and update the list of import-limiting animal diseases.

54 Incorporate a requirement for periodic review, audit enforcement, and updating into compliance agreements for the regulation of international garbage.

55 Develop and maintain a standard manual for mail inspection that includes pictures of prohibited products.

56 Provide foreign language interpretation assistance for inspectors at all port facilities.

57 Complete preparation of the Animal Products Manual (APM) in electronic format.

PRINCIPLE 2d

In order to be an effective deterrent to the incursion of foreign animal diseases, APHIS must hold appropriate authority and conduct enforcement activities.

Recommendations

58 Encourage across-the-board USDA support for passage of the new Animal Health Protection Act, which should include

strengthened civil penalties for illegally importing animals, animal products, or veterinary biologics; and the granting of subpoena and seizure power equal to existing authority for plants and plant products to all new port structures for animals and animal products.

59 Swiftly review and update the Swine Health Protection Act, drawing input from all stakeholders.

60 Extend USDA authority to inspect private boats and aircraft arriving from foreign countries.

61 Support inclusion of CVB in future legislative authority, such as that of the Drug Export Reform Enhancement Act (DEREA), to address risks posed to U.S. livestock through export-only production of vaccines.

62 Support greater authority for CVB for testing of illegally imported biologics.

63 Secure improved, electronic, foolproof permitting for approvals of imported biologic agents and vaccines.

64 Provide resources to permit CVB to secure state-of-the-art technologies for timely response to animal health surveillance and enforcement activities.

PRINCIPLE 2e

Staffing levels, qualifications, training, and assignment must be based on validated pathway risk analyses, and must provide for periodic monitoring and revision of those risk analyses.

Recommendations

65 Direct APHIS to

— Immediately assess staffing needs; this in order to address significant losses in senior personnel, and the expected loss of more;

— Review and adjust compensation disparities, grade levels, and career pathway opportunities;

— Establish partnerships with state officials, academics, and industry representatives in order to augment and complement its own staffing resources; and

— Provide more staffing for the Center for Veterinary Biologics-Inspection and Compliance (CVB-IC), the Center for Veterinary Biologics-Licensing & Policy Development (CVB-LPD), and the Center for Veterinary Biologics-Laboratory (CVB-L), all of which are currently understaffed for their mandate.

66 Direct AIQ to

— Develop for and deliver to its staff regular continuing education programs on animal diseases and animal product issues; and

— Arrange for its port directors and quarantine facility directors to meet annually to discuss mutual problems, recommend changes in procedures and policies, and harmonize operations.

67 Ensure that international mail facilities are staffed whenever parcels are being processed.

68 Enhance Foreign Animal Disease Diagnostic Laboratory (FADDL) training programs, including continuing education and accreditation, to adequately protect animal health.

69 Direct APHIS to revise and implement a private veterinarian accreditation program with sufficient funding to be free of user's fees, and to establish foreign animal disease (FAD) continuing education as a requirement of the program.

PRINCIPLE 2f

A combination of user's fees and line item appropriations must be established to adequately fund all exclusion activities and their attendant support functions.

Recommendations

70 Direct APHIS to seek the additional funding needed to support the increases in staff, staff training, salary adjustments, support infrastructure and facilities to adequately execute its mission. *(See also Exclusion Committee Summary, Principle 2e.)*

71 Seek additional funding to ensure that the new quarantine facilities fully meet standards for biosecurity, and will have the operational capacity needed for the foreseeable future.

72 Increase contingency funding for APHIS so it can better deal with emergencies.

73 Seek funding to address the diagnostic and applied research needs for FADD activities, including the establishment and maintenance of Biosafety Level (BSL) 3-AG and BSL 4 laboratory facilities.

74 Direct funding towards establishing the expertise and physical capabilities at state diagnostic laboratories to perform diagnostic testing for FAD in the event of a confirmed outbreak.

75 Maintain USDA-APHIS-VS's National Center for Import and Export (NCIE), APHIS-VS, and CVB jurisdiction over permits for importation and movement of zoonotic pathogens and all biologics that may be produced in any animal tissues or fluids.

PRINCIPLE 2g

APHIS can and should increase effectiveness of staffing by using better information systems and inspection equipment; new technologies must be accompanied by re-engineered workflow processes.

Recommendations

76 Direct APHIS-VS to establish an Office of Animal Health Information Coordination and Analysis to coordinate information acquisition, analysis, and flow within APHIS-VS.

77 Direct APHIS to support the use of new technologies.

ACE. Provide input to the development of the Customs Service Automated Commercial Environment (ACE).

TECS. Direct APHIS personnel to take full advantage of the Treasury Enforcement Communication System (TECS) to identify and track repeat violators of import restrictions.

WADS. Revise the Work Accomplishment Data System (WADS) to incorporate risk assessment and to more accurately reflect workloads.

AMS. Make mandatory the use of the Automated Manifest System (AMS) for importers.

Web-based technologies. Encourage APHIS to continue development of web-based interface solutions as a primary portal for communication with and information transfer to clients.

Electronics. Apply search engine or intelligent agent technology to the review of electronic manifests.

78 Augment the information currently collected on products seized in international mail facilities with additional information on

— consignor,

— consignee,

— country of origin, and

— specific type of product confiscated.

79 Upgrade x-ray equipment to the most advanced technology available.

80 Encourage APHIS to continue to pursue integration of its port information systems with Customs Service systems; this to eliminate the need to re-enter data from one system to the other.

81 Disseminate import permit information from the National Center for Import and Export automatically and electronically throughout APHIS, and to AVICs and state veterinarians.

82 Make software compatibility with state and industry stakeholder systems required criteria for acquisition of software or application development.

83 Upon availability, incorporate the national animal identification system into all developed and revised information systems.

INTERNATIONAL INFORMATION COMMITTEE

PRINCIPLE 3a

Internal and external communications are mission critical.

Recommendations

84 Commit resources to upgrade communication abilities within APHIS-VS and USDA to better connect USDA and related agencies; and to better monitor animal health issues among various agencies.

85 Improve APHIS-VS ability to communicate animal health issues information to its personnel, interested state animal health agencies, and vital partners.

86 Enhance and upgrade electronic monitoring of Internet communications, including enhanced security; capacity to tap into more foreign and domestic communication services; and the ability to route animal health queries to National Surveillance System (NSS). The Centers for Epidemiology and Animal Health (CEAH) should coordinate activity.

87 Secure APHIS-VS authority to administer information support for International Services (IS). Strengthen the APHIS-VS role in the Office International des Epizooties (OIE), especially as it encounters pressure to compromise over trade issues.

88 Direct APHIS-VS to develop and disseminate an annual report describing international surveillance activities.

PRINCIPLE 3b

International animal health information (IAHI) gathering must be excellent.

Recommendations

89 Direct APHIS-VS to enhance international information gathering in cooperation with IS, Plant Protection and Quarantine (PPQ), Foreign Agricultural Service (FAS), and other USDA agencies.

90 Establish a centralized group, preferably within APHIS-VS and with CEAH as an integral component, to receive, verify, process, and distribute all IAHI material.

91 Secure

— specific animal health training for all IS, FAS, and PPQ employees;

— pre-assignment briefings on international animal health;

— training for U.S. Customs agents; and

— sufficient funding for additional veterinary field service officers, including those working in customs.

92 Initiate active participation in the Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases (EMPRES), and other available electronic systems with an IAHI component.

93 Direct APHIS-VS to enlist support for information gathering from the Department of Defense, National Security Agency, U.S. Customs, and U.S. Fish and Wildlife Service, private industry, the veterinary community, international trading partners, and other USDA agencies.

PRINCIPLE 3c

Diagnostic facilities and staffing must be excellent.

Recommendations

94 Promote implementation and full funding for the APHIS-ARS Master Plan for Facility Consolidation and Modernization on an accelerated timeframe of three to four years, and for the Modernization Plan for the laboratories at Plum Island.

95 Ensure that critical agencies, personnel, and programs for the U.S diagnostic and applied research infrastructure are superlative, and that this diagnostic and applied research excellence is a critical agency priority for USDA.

PRINCIPLE 3d

Internal agency structures and systems must deliver high quality IAHI.

Recommendations

96 Establish a single, functional APHIS-VS unit to lead, coordinate, and shape IAHI collection, access, and delivery.

97 Promote a clear organizational mandate within USDA to administer, access, capture, verify, and communicate international information to all levels of USDA, as well as to all state departments of agriculture including all state veterinarians' offices.

PRINCIPLE 3e

As U.S. animal health is a key component of IAHI, the nation needs a sound system of domestic animal health reporting.

Recommendations

98 Direct USDA to clearly define the National Animal Health Reporting System (NAHRS) as a cooperative, not voluntary, program for all industries and states that request USDA certification of animal products for export.

99 Direct USDA to immediately implement an annual publication summarizing progress in animal disease control and eradication programs for each major livestock commodity species and to distribute such a document to all IS, PPQ, FSIS, FAS, and U.S. Trade Representative and U.S. State Department personnel that interact with representatives of foreign governments; to USDA employees; and to each member of the U.S. Congress.

100 Develop and implement a safeguarding information program that involves all appropriate individuals and agencies in the information chain.

101 Strengthen the federal system of accreditation for veterinarians with more stringent qualifications, including a requirement for (funded) continuing education in foreign animal disease, and reporting and use of international animal health information. *(See also Response Summary, Principle 4j, and Exclusion Summary, Recommendation 69.)*

PRINCIPLE 3f

Ports of entry need expanded detection and information gathering.

Recommendations

102 Replace manual reviews of manifests with the automated cargo targeting system being developed by APHIS (see also Exclusion Committee Summary, Recommendation 82); and immediately implement software screening of complex customs entry data to assign scrutiny of highest risk entries.

103 Move to collect all international information in a consolidated system with appropriate analysis for risk.

104 Devise improved port procedures to gather international information, including the use of nondestructive technologies, additional personnel, and canines. *(See also Exclusion Summary, Recommendations 2a and 2b.)*

RESPONSE COMMITTEE

PRINCIPLE 4a

Any national response system must be a coordinated, cooperative effort of federal and state regulatory agencies, animal industries, and related groups.

Recommendations

105 Continue cooperative efforts of APHIS, other federal agencies, and states with animal industries to complete disease eradication programs in a timely manner; develop new disease eradication programs; and, when needed, to respond to emerging diseases.

106 Lead the development of cooperative efforts among federal and state agencies, animal industry and veterinary medicine, and others to develop, implement, and enhance on-farm animal health quality assurance programs to develop best management practices, to prevent disease, and to provide surveillance and educational programs for the U.S. animal industry.

PRINCIPLE 4b

A dynamic response plan is necessary to control domestic and foreign animal diseases and issues. It should include

— enhanced training and education;

— mobilization of adequate supplies, resources, and trained personnel;

— clarification of roles and responsibilities; and

— coordination of the myriad response providers.

Recommendations

107 Reformat the current disease-specific Emergency Response Guidelines into a single-volume manual similar to the Australian Plan.

108 Expand APHIS-VS ability to trace and control potentially infected animals or contaminated animal products through cooperative agreements with state animal health agencies.

109 Include strategies to better understand and adhere to legal and regulatory requirements while also advancing the mission of public health; this in order not only to do the best job possible, but also to minimize the potential for legal challenges to response activities.

110 Implement a process to annually review and refine the National Response Plan.

111 Assess the Regional Emergency Animal Disease Eradication Organization (READEO) system and take steps to ensure that it is prepared, staffed and funded to fulfill its mission.

112 Develop a vaccination strategy for FADs, and provide personnel and supplies to implement the strategy.

113 Extend FADD training opportunities to state, university, industry, and private practitioners. Assure that the training requirement is enforced.

114 Create national personnel pools of emergency responders from the ranks of retired state and federal animal health officials, other government agencies, skilled private practitioners, non-veterinarians with specific skills (slaughterhouse personnel, wardens, wildlife services staff), and appraisers. Re-assess the use of military and reserve veterinarians and support staff as key participants early on in a national emergency response. Utilize veterinarians that work with specific species to teach others the FADs of that species at national, regional, and local meetings.

115 Continue working aggressively to integrate the United States Emergency Response Plan System (USERPS) into the Federal Emergency Management Agency (FEMA) Federal Response Plan as quickly as possible. Inclusion could be as either an annex or through development of a new emergency support function.

116 Develop a logistical support plan (similar to the Human Health Services' National Pharmaceutical Stockpile) that assures adequate emergency supplies are rapidly available to the field.

117 Fund and support the development of cooperative agreements with individual states for specific response plans and state personnel.

PRINCIPLE 4c

A state of the art infrastructure for a federal/state diagnostic laboratory system is crucial to support response actions for all animal health events, from routine surveillance monitoring to large-scale outbreaks.

Recommendations

118 Define roles and responsibilities of federal and state laboratories in the national laboratory infrastructure, including roles in FAD testing.

119 Develop and implement a quality assurance and control system for both federal and state laboratories that meets or exceeds international standards. Maintain and disseminate an active database of laboratories meeting these standards.

120 Rectify Foreign Animal Disease Diagnostic Laboratory (FADDL) staffing and salary shortfalls.

121 Utilize previous National Veterinary Services Laboratories (NVSL) reviews in conducting a needs assessment regarding emergency diagnosis and applied research. Implement a plan that supports the immediate and long-term needs of a federal/state diagnostic laboratory system.

122 Improve customer service in NVSL laboratories.

PRINCIPLE 4d

Clear lines of authority and clear rules for compensation will assure smooth operations of emergency responses.

Recommendations

123 Define specific state and federal legal authorities for emergency actions, and lines of authority from the Secretary of Agriculture to the READEO directors.

124 Ensure adequate and immediate funding for response activities, including product and animal destruction.

125 Define specific responsibilities for CEAH and APHIS staff; field and operations support; wildlife and APHIS-VS-Emergency Programs, and READEO staff.

126 Communicate all highlighted issues, principles, and authorities to all state animal health authorities and livestock industry groups.

PRINCIPLE 4e

Modern effective emergency response depends upon a world-class, integrated, and comprehensive identification and data communication management system that includes both animal and premises identification, and both international and domestic animal disease information.

Recommendations

127 Expand and maintain adequate information technology (IT) infrastructure and support staff.

128 Develop and maintain a comprehensive animal identification system that takes into consideration state and regional animal production methods.

129 Expand the web-enabled national animal database supported in each state with on-going Geographic Information System (GIS) maintenance by state and federal staff. The system should utilize other sources of GIS, and should be augmented by an early response team of APHIS geographers who can mobilize at the onset of an outbreak. The director of APHIS-VS should implement GIS expertise at the APHIS Area Office.

130 Incorporate the analysis of epidemiologic information and resource management. Make appropriate training available to state and federal animal health officials for the purpose of animal health emergency response. Ensure that software and hardware resources meet program needs, and are compatible with those used by the states. Maintain confidentiality of sensitive information.

PRINCIPLE 4f

Wildlife and exotic species management is a critical component of thorough animal disease response plans.

Recommendations

131 Determine and respond to the risk that wildlife presents in an animal health emergency. Direct appropriate agencies to eliminate or reduce wildlife-associated risks.

132 Cooperate with, expand the involvement of, and provide training to wildlife management agencies in animal health emergency planning and response. Develop a joint state-federal training program.

133 Clarify the role of APHIS Wildlife Services in response to an animal health emergency.

134 Clarify authority regarding wildlife-related aspects of animal disease control and health emergency response.

135 Consolidate data on wildlife demographics and diseases.

136 Define and prioritize applied research needs to address wildlife and exotic species issues in animal health emergencies.

PRINCIPLE 4g

The best response programs are supported by relevant applied research.

Recommendations

137 Direct APHIS-VS and ARS to prioritize and develop plans for completion of needed applied research.

138 Continue a system to arbitrate disagreements and limitations between APHIS-VS and ARS.

139 Reverse the serious erosion of animal health applied research funding that has occurred in past years.

PRINCIPLE 4h

Effective communication is a high priority at all levels of response and should be supported with adequate funding and staff.

Recommendations

140 Improve internal communications within APHIS, and encourage routine communication between CEAH, Animal Health Program headquarters, and the Secretary of Agriculture's office.

141 Establish orientation and mentoring programs for new APHIS employees to enhance awareness of other ongoing APHIS programs and the history of the agency and its programs.

142 Strengthen communication and enhance working relationships between AVICs and state veterinarians.

143 Strengthen communication on occurrences of emergency animal disease or condition.

PRINCIPLE 4i

Visionary and sustained leadership should be fostered to encourage new initiatives. These initiatives should expand the APHIS role in activities such as food safety, bioterrorism prevention, and regulatory and emergency response.

Recommendations

144 Encourage routine visits to the field in order to observe needs and opportunities for program enhancement. Relocate key positions traditionally maintained at national headquarters to be closer to field operations; this to improve response efforts and attract talented individuals who may not wish to relocate to Washington, D.C. Actively work with partners to clarify and solidify working relationships. Identify new areas of cooperation, defining roles within them.

PRINCIPLE 4j

A national veterinary accreditation program is needed to bolster emergency response systems and to improve preparations.

Recommendations

145 Redesign and upgrade the national veterinary accreditation program to include

— standardized national training and reinstatement of the examination;

— periodic revision of the accreditation manual;

— periodic communication with all accredited veterinarians to emphasize their important role in certification of animal movement, reporting, and response to unusual animal diseases or conditions; and

— mandatory training to maintain accreditation.

146 Continue development of two levels of accreditation: Large Animal (Category 1) & Non-large Animal (Category 2). Make paramount the emphasis on FAD diagnosis, containment, reporting, and response with state and federal agencies, along with continuing education for the Large Animal classification. Allow Category 2 veterinarians to issue only small animal health certificates.

147 Expand the accreditation program to be the core for emergency preparedness and the response plan.

PRINCIPLE 4k

A comprehensive indemnity plan and a clear-cut condemnation process are vital to the success of and industry support for any response plan.

Recommendations

148 Clearly define, establish, and communicate a comprehensive indemnity plan.

149 Clearly define and establish a seizure process.

150 Ensure adequate funding for both of the above, and define funding responsibility so that it is a part of the response plan and not a decision to be made during a crisis.

151 Provide a process for industry input and attendant guidelines for FAD outbreak response.

152 Continue to develop guidelines and cultivate legal authority for humane euthanasia and carcass disposal in order to maintain biosecurity, and to prevent spread of infectious agents.

Appendix II: Acronyms and Abbreviations

AAC Animal Agriculture Coalition
AAVLD American Association of Veterinary Laboratory Diagnosticians
ACE Automated Commercial Environment (U.S. Customs Service)
AHICA Animal Health Information Coordination and Analysis
AHT animal health technician
AIQ agricultural inspection and quarantine
AVMA American Veterinary Medical Association
AMS Automated Manifest System
AHPA Animal Health Protection Act
APM Animal Products Manual
ARS Agricultural Research Service (USDA)
AVIC area veterinarian in charge
BSE bovine spongiform encephalopathy, also mad cow disease
BSL Biosafety Level
CADIA Center for Animal Disease Information and Analysis (CEAH)
CDC Centers for Disease Control and Prevention
CEAH Centers for Epidemiology and Animal Health (USDA-APHIS-VS)
CVB Center for Veterinary Biologics (USDA-APHIS-VS)
CVB-IC Center for Veterinary Biologics-Inspection and Compliance (USDA-APHIS-VS-CVB)
CVB-L Center for Veterinary Biologics-Laboratory (USDA-APHIS-VS-CVB)
CVB-LPD Center for Veterinary Biologics-Licensing and Policy Development (USDA-APHIS-VS-CVB)
DEREA Drug Export Reform Enhancement Act
DOD United States Department of Defense
EMOC Emergency Operation Center
EMPRES Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases (FAO)
FADD foreign animal disease diagnostician
FAD foreign animal disease
FAO Food and Agriculture Organization of the United Nations
FADDL Foreign Animal Disease Diagnostic Laboratory (USDA-APHIS-VS)
FAS Foreign Agricultural Service (USDA)
FSA Farm Service Agency (USDA)
FEMA Federal Emergency Management Agency
FMD foot-and-mouth disease
FMDV foot-and-mouth disease virus (Aphthovirus)
FSIS Food Safety and Inspection Service (USDA)
GAO General Accounting Office
GIS Geographic Information System

HHS United States Department of Health & Human Services
IAHI international animal health information
INS Immigration and Naturalization Service (DOJ)
IS International Services (USDA-APHIS)
ISO International Organization for Standardization
ITDS International Trade Data System (U.S. Customs Service)
MS&R monitoring, surveillance and reporting
NAAHC North American Animal Health Committee
NADC National Animal Disease Center (USDA-ARS)
NAHMS National Animal Health Monitoring System
NAHRS National Animal Health Reporting System
NCIE National Center for Import and Export (USDA-APHIS-VS)
NIAA National Institute of Animal Agriculture
NIMBY not in my backyard; a mock foreign animal disease outbreak exercise
NSS National Surveillance System
NVSL National Veterinary Services Laboratories (USDA-APHIS-VS)
OIE Office International des Epizooties
POE port(s) of entry
PPQ Plant Protection and Quarantine (USDA-APHIS)
PR public relations
PRV pseudorabies virus
QA quality assurance
R&D research and development
READEO Regional Emergency Animal Disease Eradication Organization (USDA-APHIS-VS)
SAHO state animal health official
SEMA state emergency management agencies
SCWDS Southeastern Cooperative Wildlife Disease Study
SHPA Swine Health Protection Act
SITC Smuggling Interdiction and Trade Compliance
TECS Treasury Enforcement Communications System (U.S. Treasury)
UK United Kingdom
USAHA United States Animal Health Association
USDA United States Department of Agriculture
USERPS United States Emergency Response Plan System
USFWS United States Fish & Wildlife Service
USGS United States Geological Survey
USTR United States Trade Representative
VMO veterinary medical officer
VS Veterinary Services (USDA-APHIS)
WADS Workload Accomplishment Data System program
WS Wildlife Services (USDA-APHIS)

Appendix III: Glossary

Amnesty bins

Containers installed at ports of entry so that arriving visitors can dispose of undeclared products that may be banned from the United States.

Animal Protection Act

The Animal Protection Act is a provincial law that is in force everywhere in Alberta, Canada. It states: If you own an animal or are in charge of an animal, you cannot cause it to be in distress or permit it to remain in distress. An animal is in distress if it does not have adequate food, water, care or shelter; is injured, sick, in pain or suffering; or is abused or neglected. However, this law also states that an animal is not considered to be in distress if the distress happens through reasonable and accepted ways of raising or keeping animals (example: the branding of calves, or the slaughter of livestock).

Automated Commercial Environment

A new system under development to streamline Customs commercial processing systems including the reengineering of Customs operational processes and the development of a new technology infrastructure, computer systems, and software applications to support these processes.

Automated Manifest System

A multi-modular cargo inventory control and release notification system for sea, air, and rail carriers. AMS speeds the flow of cargo and entry processing and provides participants with electronic authorization to move cargo prior to arrival.

Biologics

A preparation, such as a drug, a vaccine, or an antitoxin, that is synthesized from living organisms or their products and used medically as a diagnostic, preventive, or therapeutic agent.

Biosafety Level

The Centers for Disease Control (CDC) and the National Institutes of Health (NIH) have established four biosafety levels consisting of recommended laboratory practices, safety equipment, and facilities for various types of infectious agents. Each biosafety level accounts for the operations to be performed, known and suspected routes of transmission, and laboratory function

Biosecurity

Protection from the risks posed by organisms to the economy, environment and people's health, through exclusion, eradication and control.

De Novo disease risks

"New" disease risks.

Emergency response plan

Strategy to detect, control and eradicate a highly contagious disease as quickly as possible to return the United States to free status. A presumptive positive case will generate immediate, appropriate local and national measures to eliminate the crisis and minimize the consequences. A confirmed positive case will generate additional measures on a regional, national and international scale.

EMPRES

System established in 1994 by FAO in order to minimize the risk of migrating diseases across borders and mitigate major losses and emergencies. The system was named as Emergency Prevention System (EMPRES) for Transboundary Animal and Plant Pests and Diseases.

Endemic diseases

The constant presence of diseases or infectious agents within a given geographic area or population group. It may also refer to the usual prevalence of a given disease within such area or group. It includes holoendemic and hyperendemic diseases.

Epidemiology

The study of the distribution and determinants of health-related states and events in populations and the control of health problems; the study of epidemic disease.

Epi Info

Epi Info and Epi Map are public domain software packages designed for the global community of public health practitioners and researchers. Both provide for easy form and database construction, data entry, and analysis with epidemiologic statistics, maps, and graphs. Although "Epi Info" is a CDC trademark, the programs, documentation, and teaching materials are in the public domain and may be freely copied, distributed, and translated.

Focal disease

Disease limited to one specific area.

Foot-and-mouth disease Red Book

A publication containing general guidelines compiled by APHIS' Veterinary Services for the emergency operations and organization required for the diagnosis, control, and eradication of foot-and-mouth disease by state and federal animal health officials.

Geographic Information Systems

In the strictest sense, a GIS is a computer system capable of assembling, storing, manipulating, and displaying geographically referenced information; i.e., data identified according to their locations. Practitioners also regard the total GIS as including operating personnel and the data that go into the system.

Immunotherapy Products

Those products used under a therapeutic approach to treat disease by stimulating or enhancing the body's immune response against the disease.

Intelligent Agent Technology (IAT)

The use of an agent that acts or exerts power. Intelligent Agent (IA) is an agent, which has the capability to deal with new situations. IA must have the autonomous and rational properties. Intelligent Agent is a software program that uses agent communication protocols to exchange information for automatic problem solving. IA might have services capabilities, autonomous decision, and commitments features. Some other criteria make IAs more personalizable: cooperation, negotiation, and conflict resolution.

Interdication

Interdiction is the term is used with respect of exclusion of disease from the United States: the disease has been found during inspection or testing before the animal or product carrying the disease has entered the country and marketing chain.

International Trade Data System

A new software database under development by the U.S Customs Service to monitor and regulate product coming into the United States.

ISO 17025

The International Organization for Standardization's (ISO) standard that sets out the general provisions which a laboratory must address to carry out specific calibrations or tests. It provides the laboratory direction for the development and implementation of a fundamental quality management system.

National Animal Health Reporting

The National Animal Health Reporting System (NAHRS) is a joint effort of the U.S. Animal Health Association (USAHA), the American Association of Veterinary Laboratory Diagnosticians (AAVLD), and the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS). The NAHRS is considered to be one part of a comprehensive, integrated animal health surveillance system in the U.S. Participation in the NAHRS is currently voluntary and is planned to remain so.

National Center for Import and Export

A branch of APHIS-VS which provides information about importing and exporting live animals and animal products.

National Veterinary Service Laboratories

The National Veterinary Services Laboratories (NVSL) perform animal disease testing for Veterinary Services (VS) and are the only laboratories in the Animal and Plant Health Inspection Service (APHIS) dedicated to the testing of diagnostic specimens for domestic and foreign animal diseases. The NVSL provides analytical services, disseminates scientific information, conducts developmental activities, and provides training for APHIS programs. It also works closely with APHIS' International Services to provide consultation, reagents, and training for foreign governments. Laboratory support services are provided for many APHIS programs. The NVSL works closely with VS specialists in program development and program monitoring, and personnel are active on many animal health organization committees. The NVSL clients and stakeholders include private, state, federal, and university diagnostic laboratories and other groups, both domestic and international.

North American Animal Health Committee

A committee comprised of the chief veterinary officers from the United States, Canada, and Mexico that represents animal health issues relative to the North American Free Trade Agreement . This committee was formerly known as the "Tripartite."

Office International des Epizooties (OIE)

The OIE is an intergovernmental organization created by the International Agreement of 25 January 1924, signed by 28 countries. In May 2001, the OIE totalled 158 member countries. It's mission is to guarantee the transparency of animal disease status worldwide; to collect, analyze and disseminate veterinary scientific information; to provide expertise and promote international solidarity for the control of animal diseases; and to guarantee the sanitary safety of world trade by developing sanitary rules for international trade in animals and animal products.

OIE List A

Office International des Epizooties Classification for Transmissible diseases that have the potential for very serious and rapid spread, irrespective of national borders, that are of serious socio-economic or public health consequence and that are of major importance in the international trade of animals and animal products.

OIE List B

Office International des Epizooties Classification for Transmissible diseases that are considered to be of socio-economic and/or public health importance within countries and that are significant in the international trade of animals and animal products.

Outbreak response software

Emergency software program under development at APHIS-Veterinary Services to assist tracking of individuals who visit critical sites during a disease outbreak.

Port of entry

Port through which vessels or goods enter or leave the country (i.e., cleared through U.S. Customs).

Promulgation

Public declaration.

Recombinant organisms

The phrase "recombinant microorganisms" is generally taken to mean microorganisms (bacteria, viruses, fungi, protozoa) constructed using genetic engineering technologies to intentionally direct alteration of the genetic code of the recombinant through introduction of nucleic acid coding sequences from one microorganism into the nucleic acid sequences of another in a manner that the introduced (foreign) nucleic acid becomes a permanent part of the genome of the recombinant microorganism. Sometimes the term is informally used to indicate microorganisms with gene deletions (specific nucleic acid sequences removed from the genetic map of the microorganism). Recombinant microorganisms also may occur as a result of undirected exchange of

nucleic acid sequences from one microorganism to another (natural recombinants). In all cases, recombinant organisms pass on the genetic alterations to their progeny.

Regional Emergency Animal Disease Eradication Organization (READEO)

A standing emergency response group within APHIS' Veterinary Services. There are two READEO teams, one in Raleigh, North Carolina, and one in Fort Collins, Colorado, each comprised of 47 personnel. Upon activiation, the READEO will deploy to the site of a disease outbreak and serve as the command and control element for the USDA response.

Regional Laboratory Network

An intricately connected system of people and regional laboratories fostering formal; partnerships and collaborations, conducting of research and surveillance, and dissemination of information.

Smuggling Interdiction and Trade Compliance Program (SITC)

The SITC seeks to prevent unlawful entry and distribution of prohibited products that may harbor harmful exotic plant and animal pests, disease, or invasive species. APHIS' Plant Protection and Quarantine (PPQ) unit created the program. SITC is made up of federal, state, and private organizations. Complementing the work of PPQ inspectors at U.S. ports of entry, SITC officers discover and close the pathways through which prohibited commodities might enter the United States.

Swine Health Protection Act

The Swine Health Protection Act (SHPA) is a U.S. law enacted by the U.S. Congress in 1980 to prevent the introduction of foreign animal diseases to domestic swine populations fed raw or improperly treated food waste of animal origin. The SHPA also helps to prevent the spread of diseases of public health concern (Salmonella, Trichinella, etc.) by requiring food waste to be properly cooked before feeding to swine. Regulations under the SHPA require (1) a license to feed waste materials, (2) proper heat treatment of waste products prior to being fed to swine, and (3) periodic inspections of facilities and animals as part of compliance with regulations.

Transparency

Transparency refers to being forthcoming about goals and short-term tactics and, therefore, being easily and clearly understood.

Treasury Enforcement Communications System

A computer program that allows the U.S. Treasury Department at airports to enter known violators into a database The database is then synchronized with the Immigration and Naturalization Service's (INS) database at the foreign visitor entrance point at U.S. Customs to notify Customs' officials of known violators.

Vaccination Protocol

Vaccination protocol is the recommended directions for use of a biologic. The recommended protocol has been shown to elicit a protective immune response in the target host animal sufficient to achieve the claims on the label in a sufficient number of animals. Failure to follow a recommended vaccination protocol may result in failure to achieve desired effects.

Veterinary Services (VS)

USDA-APHIS section in charge of protecting and improving the health, quality, and marketability of the nation's animals, animal products and veterinary biologics by:

- preventing, controlling and/or eliminating animal diseases, and
- monitoring and promoting animal health and productivity.

Work Accomplishment Data System

An accomplishment tracking and budget planning data system used by APHIS Plant Protection and Quarantine.

Zoonotic

Disease that is common to both humans and animals, such as rabies or ringworm.

Appendix IV: Review Panel and Committees

Review Panel

Chair The Honorable Gus R. Douglass, Commissioner, West Virginia Department of Agriculture
Vice Chair The Honorable Lester Spell, DVM, Commissioner, Mississippi Department of Agriculture & Commerce
Dr. Richard Breitmeyer, DVM, Director, Animal Health & Food Safety Services, California Dept. of Food & Agriculture
Dr. Sharon Hietala, PhD, Professor of Clinical Immunology, California Animal Health & Food Safety Laboratory System, University of California
Dr. Bob Hillman, DVM, State Veterinarian, Idaho Department of Agriculture
Dr. Beth Lautner, DVM, MS, Vice President, Science and Technology, National Pork Board
Dr. Donald Lein, DVM, PhD, Director of Diagnostics Laboratory, College of Veterinary Medicine, Cornell University
Dr. Martha Roberts, PhD, Deputy Commissioner, Florida Department of Agriculture & Consumer Services
Mr. Paul Rodgers, Director of Animal Health, Product Safety & Technical Assistance, American Sheep Industry Association
Dr. Richard Ross, DVM, PhD, Dean, College of Agriculture, Iowa State University
Dr. Bruce Stewart-Brown, DVM, ACPV, Director of Health Services, Perdue Farms, Inc.
Dr. Peter Timoney, DVM, PhD, MS, Director, Maxwell H. Gluck Equine Research Center, Department of Veterinary Science, University of Kentucky
Dr. Gary Weber, PhD, Executive Director, Regulatory Affairs, National Cattlemen's Beef Association
Mr. Sherman Wilhelm, JD, Director, Division of Aquaculture, Florida Dept. of Agriculture & Consumer Services

Domestic Detection and Surveillance Committee

Chair Dr. Beth Lautner, DVM, MS, Vice President, Science and Technology, National Pork Board
Dr. Bob Good, DVM, Consultant, Tyson Foods
Dr. William Hueston, DVM, PhD, Professor and Associate Dean, University of Maryland campus of the Virginia-Maryland Regional College of Veterinary Medicine
Dr. John Huntley, DVM, State Veterinarian, New York Department of Agriculture and Markets
Mr. Jim Leafstedt, Chair, South Dakota Animal Industry Board
Dr. Bret Marsh, DVM, State Veterinarian, Indiana State Board of Animal Health
Dr. Mo Salman, BVMS, MPVM, PhD, Professor of Veterinary Epidemiology, College of Veterinary Medicine and Biomedical Sciences, Colorado State University
Dr. Scott Wells, DVM, PhD, Associate Professor, Clinical and Population Studies, College of Veterinary Medicine, University of Minnesota

Exclusion Activities Committee

Chair Dr. Richard Ross, DVM, PhD, Dean, College of Agriculture, Iowa State University
Dr. Bruce L. Akey, MS, DVM, Chief, Office of Laboratory Services, Virginia Department of Agriculture & Consumer Services
Dr. Terry Beals, DVM, Texas Animal Health Commission *(retired)*
Ms. Leah Becker, Government Relations Representative, National Pork Producers Council
Dr. Linda Logan, DVM, PhD, Executive Director, Texas Animal Health Commission
Dr. David Zeman, DVM, PhD, South Dakota State University, Head, Veterinary Science Department and Director, South Dakota Animal Disease Research & Diagnostic Laboratory
Dr. Ernest Zirkle, DVM, State Veterinarian, New Jersey Department of Agriculture

International Information Committee

Chair Dr. Martha Roberts, PhD, Deputy Commissioner, Florida Dept. of Agriculture & Consumer Services
Dr. J. Lee Alley, DVM, State Veterinarian, Alabama State Department of Agriculture
Dr. Corrie Brown, DVM, Professor, Department of Pathology, College of Veterinary Medicine, University of Georgia
Dr. Leroy Coffman, DVM, Director & State Veterinarian, Division of Animal Industry, Florida Dept. of Agriculture & Consumer Services
Dr. Robert Kahrs, DVM, PhD, Director, National Center for Import and Export, Trade Policy Liaison for Veterinary Matters, USDA *(retired)*
Dr. R.L. Sibbel, DVM, Manager, Livestock Technical Services, Schering-Plough Animal Health Corporation
Dr. Rick Willer, DVM, State Veterinarian, Arizona Department of Agriculture

Response Committee

Chair Dr. Donald Lein, DVM, PhD, Director of Diagnostic Laboratory, College of Veterinary Medicine, Cornell University
Dr. Alex Ardans, DVM, MS, Director, California Animal Health and Food Safety Laboratory, University of California
Dr. Robert Eckroade, DVM, Associate Professor, Avian Medicine and Pathology, University of Pennsylvania
Dr. John Fischer, DVM, Director, Southeastern Cooperative Wildlife Disease Study, College of Veterinary Medicine, University of Georgia
Mr. Wayne Godwin, Second Vice President, Florida Cattlemens Association
Dr. Heidi Hamlen, DVM, MS, California Department of Food and Agriculture
Dr. Sam Holland, DVM, State Veterinarian, South Dakota Animal Industry Board
Dr. Kenneth Olson, PhD, Dairy and Animal Health Consultant
Dr. David Thain, DVM, State Veterinarian, Nevada Department of Agriculture, Bureau of Animal Industry
Dr. Larry Williams, DVM, State Veterinarian, Bureau of Animal Industries, Nebraska Department of Agriculture

Ex-Officios

Mr. Richard W. Kirchhoff, Executive Vice President & CEO, NASDA
Dr. Jim Watson, DVM, Director, Board of Animal Health, Mississippi Department of Agriculture and Commerce

Resource Coordinators

Lead Mr. Patrick S. Atagi, Manager, Legislative & Regulatory Affairs, NASDA
Mr. Bruce Andrews, Andrews, Doyle Associates
Ms. Becky Doyle, Andrews, Doyle Associates
Dr. Al Strating, Associate Adminstrator, USDA, APHIS *(retired)*

APHIS Steering Committee

Lead Dr. Gary Brickler, DVM, USDA, APHIS, VS, Area Veterinarian-In-Charge, Alaska/Hawaii/Washington Area
Dr. Randall Crom, DVM, Senior Staff Veterinarian, Emergency Programs Staff, USDA, APHIS, Veterinary Services
Dr. Jose Diez, DVM, Assistant Director, Eastern Region, USDA, APHIS, Veterinary Services
Dr. Rick Hill, PhD, Director, Licensing and Policy Development, USDA, APHIS, Veterinary Services
Dr. Andrea Morgan, DVM, Associate Director, Animal Health Programs, USDA, APHIS, Veterinary Services
Dr. Robert Nervig, DVM, Director, Eastern Region, USDA, APHIS, Veterinary Services
Mr. Robert Spaide, Asst. Director, Safeguarding & Pest Mgmt., USDA, APHIS, Plant Protection & Quarantine
Carol Tuszynski, PhD, Center Leader, Center for Emerging Issues, USDA, APHIS, Veterinary Services

Biographies
Review Panel

Chair The Honorable Gus R. Douglass, Commissioner, West Virginia Department of Agriculture

Gus R. Douglass was elected to his ninth four-year term as West Virginia's Commissioner of Agriculture in November 2000. With 32 years of service, he is now the Senior Commissioner of Agriculture in the United States. Raised amidst agriculture in Grimms Landing, West Virginia, Commissioner Douglass served as state and national president of the Future Farmers of America (FFA), was chosen as a West Virginia Star Farmer and later helped to organize and serve as first president of the National FFA Alumni Association. He holds a bachelor's degree from West Virginia University, and an honorary Doctor of Laws degree from West Virginia State College.

Commissioner Douglass has received a variety of honors, including Gamma Sigma Delta award for Distinguished Service to West Virginia agriculture, and Progressive Farmer Magazine's "Man of the Year" in West Virginia agriculture. In August of 1997, Douglass was awarded membership into the Alpha Zeta Fraternity Honor Roll. Commissioner Douglass has received USDA's Pseudorabies-Free Award in recognition of his efforts to keep the state of West Virginia disease-free.

Vice Chair The Honorable Lester Spell, DVM, Commissioner, Mississippi Department of Agriculture & Commerce

In 1975, Dr. Spell was elected mayor of his hometown — a position he held until 1996 when he took office as Commissioner of Agriculture. His experience and understanding of economic development enabled him to bring in many new businesses and create new jobs for area residents. He is now serving a second term as the Commissioner of Agriculture and Commerce.

Commissioner Spell served a two-year term as President of the Southern United States Trade Association (SUSTA), an organization to promote international marketing efforts. He is chairman of the Mississippi Fair Commission and Central Farmers' Market Board.

Commissioner Spell's background in agriculture, his experience as a Mayor and a veterinarian, and his record in economic development give him a good perspective for moving the Department of Agriculture and Commerce into a proactive position.

Lester Spell is a sixth-generation Mississippian whose family has farmed and been in business in the state since the early 1800s. He and his wife Sandra live in Richland with their two children, Jason and Katie, in the original home of his great-grandparents.

Growing up, Spell was very active in 4-H. This early interest led him first to Mississippi State for pre-veterinary studies and then to Auburn where he received his Doctorate of Veterinary Medicine in 1968. He then served two years as captain in the Army, supervising inspection of 90% of the perishable food shipped to Vietnam from the West Coast.

In 1970, he returned to Mississippi, beginning his veterinary practice and farming. In addition to raising blueberries, sweet corn and pumpkins, he oversaw the family's timber and wildlife management programs.

Dr. Richard Breitmeyer, DVM, Director, Animal Health & Food Safety Services, California Dept. of Food & Agriculture

Dr. Breitmeyer, as Director of Animal Health and Food Safety Services since 1993, oversees an annual budget of $28 million and 250 employees engaged in programs for animal health, milk and dairy foods control, meat and poultry inspection and livestock identification. He works closely with the California Animal Health and Food Safety Laboratory System that is operated by the School of Veterinary Medicine, U. C. Davis, under a contract with the Department. He also serves as the State Veterinarian, and has broad responsibility for animal health regulatory issues, including quarantine authority.

Dr. Breitmeyer is a graduate of the School of Veterinary Medicine at the University of California at Davis (UCD) and also holds a Master's in Preventive Veterinary Medicine degree from UCD.

He is an active member of many state and national animal health and veterinary medical associations and currently serves as Chairman of the United States Animal Health Association's Food Safety Committee, is on the Executive Committee of the National Institute for Animal Agriculture and is a member of the USDA Secretary's Advisory Committee for Foreign Animal and Poultry Diseases.

Dr. Sharon Hietala, PhD, Professor of Clinical Immunology, California Animal Health & Food Safety Laboratory System, University of California

Sharon K. Hietala is currently a professor of clinical diagnostic immunology with the California Animal Health and Food Safety Laboratory System, and has a joint appointment in the School of Veterinary Medicine, Department of Medicine and Epidemiology at the University of California, Davis. Sharon earned a bachelor's degree in bacteriology in 1976, and a PhD in comparative pathology in 1987, both from U.C, Davis. Sharon joined the California Animal Health and Food Safety Laboratory in 1989, where she is responsible for the immunology and biotechnology services in the 5-laboratory system. Her professional interests include serology, molecular diagnostics, and diagnostic epidemiology. She is an active member of the American Association of Veterinary Laboratory Diagnosticians, the U.S. Animal Health Association, and a variety of food animal and poultry industry issue and interest groups.

Dr. Bob Hillman, DVM, State Veterinarian, Idaho Department of Agriculture

Bob Hillman was born in Medina, Texas, in 1944 and was reared on a small ranch in central Texas. He holds degrees in Veterinary Science, '70, and Veterinary Medicine, '71, from Texas A&M University. Dr. Hillman spent one year in mixed veterinary practice that included primarily cattle and horses in Texas before moving to Idaho to continue in private practice for eight more years.

In 1980, Dr. Hillman joined the staff at the Idaho State Department of Agriculture as the chief of the Bureau of Animal Health. In 1988, he served as the president of the Western States Livestock Health Association. In 1990, he was named as the administrator of the Division of Animal Industries and State Veterinarian, positions he continues to hold today.

Currently Dr. Hillman holds numerous positions in organizations relating to animal health. He is a designated epidemiologist for Brucellosis, Tuberculosis and Pseudorabies. He also served as technical advisor to the Governor's Wildlife Brucellosis Task Force.

In addition to serving as the 2001 president of the United States Animal Health Association, he also contributes his time and efforts as a member on that organization's Executive Committee; Committee on Tuberculosis; Committee on Brucellosis; and Committee on Wildlife Diseases. Dr. Hillman is a member of the National Cattlemen's Beef Association's Cattle Health and Well being Committee and has served on the Bi-National Tuberculosis and Brucellosis Committee. He also serves as the chairman of the Greater Yellowstone Interagency Brucellosis Committee.

Dr. Hillman's interests include issues, events, and circumstances that impact the livestock industries of the state of Idaho and the United States. He is also greatly interested in wildlife diseases.

Dr. Beth Lautner, DVM, MS, Vice President, Science and Technology, National Pork Board

Beth Lautner is Vice President of Science and Technology for the National Pork Board. She is responsible for the development and coordination of food safety, swine health, pork quality, diet/health, animal welfare, and worker health and safety programs and information. Her duties also include overseeing the Pseudorabies Eradication Program and emergency disease management activities.

Prior to becoming part of the National Pork Board staff on July 1, 2001, Lautner was Vice President of Science and Technology for the National Pork Producers Council (NPPC). Lautner joined NPPC in April 1991 as Director of Producer Education. In August 1992, she assumed the position of Director of Swine Health and Pork Safety. In February 1994, she was promoted to Vice President of Health and Pork Safety, renamed Science and Technology in 1997.

Following graduation from Michigan State University College of Veterinary Medicine in 1986, Lautner joined a mixed animal practice in LeMars, Iowa. In 1986, she opened her own practice, Swine Health Services. Her practice provided herd health programs and computerized records for area pork producers. In 1990, she completed her Master of Science degree at the University of Minnesota with her research area being transmission of pseudorabies virus.

Lautner is a member of the American Association of Swine Veterinarians (AASV), the American Veterinary Medical Association (AVMA), and the Iowa Veterinary Medical Association (IVMA). She serves on the Swine Health Committee for the AASV. In 1994, she received the Howard W. Dunne Memorial Award for outstanding service to AASV and the pork industry. Lautner received the Animal and Plant Health Inspection Service Administrator's Award in 1997 in recognition of her contributions to the advancement of animal health.

Dr. Donald Lein, DVM, PhD, Director of Diagnostics Laboratory, College of Veterinary Medicine, Cornell University

Donald H. Lein, DVM, Ph.D. is currently Director of the New York State Diagnostic Laboratory and Emeritus Professor of Pathology and Theriogenology, Department of Population Medicine and Diagnostic Science, College of Veterinary Medicine, Cornell University. He served as Laboratory Director from 1987-1998 and Department Chair/Laboratory Director from 1998 - 2000. His field specialties are Theriogenology - all species; Reproductive, Comparative and Diagnostic Pathology; Diagnostic Microbiology and Immunology, Reproductive Physiology and Endocrinology; Herd Health and Preventive Medicine Programs. Past and current research efforts in Comparative Reproductive Diseases, especially *Mycoplasma* and *Ureaplasma*-induced, Reproductive Physiology and Endocrinology -small and large animals, Reproductive Pathology and Abortions -all species, Pathogenesis of Infectious Diseases and Preventive Medicine programs.

Dr. Lein is currently serving on the following state and national organizations: Board Member, New York Center for Agricultural Medicine & Health (NYCAMH); Member, Veterinary Antimicrobial Sensitivity Testing Force; Member, Subcommittee, NCCLS; Board Member and Secretary of Executive Board, National Institute for Animal Agriculture (NIAA); Member, Accreditation Board, American Association Veterinary Laboratory Diagnosticians; Member and 3rd Vice President of U.S. Animal Health Association Board of Directors; Member, AVMA Counsel on Public Health and Regulated Veterinary Medicine; Member, APHIS' Wildlife Services, Wildlife Rabies Vaccination Committee.

Dr. Martha Roberts, PhD, Deputy Commissioner, Florida Department of Agriculture & Consumer Services

Appointed as Deputy Commissioner of Agriculture, State of Florida,1991; formerly Assistant Commissioner of Agriculture, 1984-1991; over Divisions of Animal Industry, Dairy Industry, Food Safety, Ag Water Policy, Aquaculture and Ag Environmental Services including the Pesticide program. Began with the department in 1968 as a microbiologist. Received B.S. Biology, North Georgia College, M.S. and Ph. D. in Microbiology from University of Georgia. Past President, Association of Food and Drug Officials (AFDO); past Chairman, Conference for Food Protection, served on FDA/USDA National Advisory Committee on Microbiological Criteria for Foods from 1988-1994, FDA Food Advisory Committee 1993-1997, Blue Ribbon Task Force of the National Live Stock and Meat Board, the Food and Drug Law Institute Board of Trustees, and the Science Advisory

Committee for the Institute of Food Technologists Contracts with FDA. Major awards received from agricultural, food and microbiological groups and agencies. editor of *Food Mycology, Adulteration of Fruit Juice Beverages, Food Protection Technology II*, author of numerous articles, publications, and contributor *HACCP in Meat, Poultry, and Fish Processing*. Frequent speaker and lecturer.

Mr. Paul Rodgers, Director of Animal Health, Product Safety & Technical Assistance, American Sheep Industry Association

Paul Rodgers is the director of animal health, product safety, technical services and lamb marketing for the American Sheep Industry Association (ASI). He is responsible for the development of educational material and implementation of activities that directly benefit sheep producers. He has staff responsibilities to the Production Services Council focusing on research, education, and regulatory policy. He works closely with the Animal Health Committee and represents the sheep industry on several boards and committees that address animal health and quality assurance. In addition, he staffs the American Lamb Council. His responsibilities in this area include technical support for the Section 201 trade case and implementation and oversight of competitiveness improvement initiatives.

As a representative of the ASI, Rodgers works closely with sheep producers nationwide through the state organizations, representatives of lamb and wool processing industries, state extension services, and state and federal departments of agriculture.

Rodgers began working for the sheep industry in 1984 as a consultant for the American Sheep Producers Council (ASPC). He worked on special projects in both inter-mountain and eastern areas, developing sheep production management material including a comprehensive planning guide for producers to conduct a sheep enterprise cost and return analysis. He served as the Mid-Atlantic director of marketing and industry services where he was responsible for developing and implementing merchandising programs in the retail and foodservice segments of the industry and the wool marketing and manufacturing industries. He also worked in Washington, D.C., during 1984 and 1985 in the Legislative Information Services area for ASPC.

Prior to joining ASPC, Rodgers was assistant general manager of the National Live Stock Producers Association and associate manager of the National Electronic Marketing Association where he helped develop and implement the electronic auction system, which has been used since 1980 for marketing lambs and cattle.

Dr. Richard Ross, DVM, PhD, Dean, College of Agriculture, Iowa State University

Richard F. Ross is currently Dean of Agriculture at Iowa State University. Previous positions held include Interim Dean of the College of Agriculture, Dean of Veterinary Medicine, Interim Dean of Veterinary Medicine, Associate Dean for Research and Professor in Charge, Veterinary Medical Research Institute, College of Veterinary Medicine, Iowa State University. He is Clarence Hartley Covault Distinguished Professor of Veterinary Medicine. Dr. Ross received the DVM from Iowa State University in 1959, and the MS in Veterinary Bacteriology in 1960 and the Ph.D. in Veterinary Bacteriology in 1965 also from Iowa State University. Dr. Ross is a Diplomate, American College of Veterinary Microbiologists. He was a Postdoctoral Fellow, Public Health Service, Rocky Mountain Laboratory, N.I.A.I.D., Hamilton, Montana 9-65 to 8-66. He has a Senior U.S. Scientist Award from Alexander von Humboldt Foundation, West Germany. For one year (1975 to 1976), he served at the Institut für Mikrobiologie und Tierseuchen der Tierärztlichen Hochschule, Hannover. Recent activities, include representing the Association of American Veterinary Medical Colleges on the Secretary of Agriculture's National Agricultural Research, Extension, Education, and Economics Advisory Board and the Secretary of Agriculture's Strategic Planning Task Force. In addition, Dr. Ross has served as Secretary, President Elect, President (1997 to 1998) and Past President of the Association of American Veterinary Medical Colleges.

Recognitions include Clarence Hartley Covault Distinguished Professor in Veterinary Medicine (Iowa State University), Fellow, American Academy of Microbiology, Faculty Citation, ISU Alumni Association, Howard Dunne Memorial Lecture for 1984 - American Association of Swine Practitioners, Delta Beta Xi (National distinguished service award for alumni of Alpha Sigma Phi social fraternity), Honorary Master Pork Producer, Iowa Pork Producers Association, 1985, Beecham Award for Research Excellence, 1985, Presidents Award - Iowa Veterinary Medical Association, 1988, Howard Dunne Memorial Award, American Association of Swine Practitioners, 1988, American Feed Manufacturers Association - American Veterinary Medical Association Award for Research at the annual meeting of the American Veterinary Medical Association in 1995. and United States Department of Agriculture - Secretary's Award for Personal and Professional Achievement. 1996. Dr. Ross is a member of the American Veterinary Medical Association, the Iowa Veterinary Medical Association, the American Society for Microbiology, the Conference of Research Workers in Animal Diseases, the American Association of Swine Practitioners, the American Association for the Advancement of Science and the International Organization for Mycoplasmology. He has over 100 scientific publications, primarily in the field of diseases of swine.

Dr. Bruce Stewart-Brown, DVM, ACPV, Director of Health Services, Perdue Farms, Inc.

Dr. Stewart-Brown began his career as a Student Research Technician at the Department of Pharmacology and Physiology, Iowa State University, Ames, Iowa, summer of 1982. He became a Poultry Extern Student, Department of Avian Medicine, North Carolina State University, Raleigh, North Carolina, in January 1985. From October 1985 to 1988, he held the position of Technical Service Veterinarian at Salsbury Laboratories, Inc., Charles City, Iowa, then Senior Technical Service Veterinarian, Solvay Animal Health, Inc., Mendota Heights, Minnesota, from 1989 to 1992. He was promoted to Professional Services Manager and held the position from 1992-1997. From 1997 to 1998, he was Director of Poultry Technical Services, Fort Dodge Animal Health, Inc, Overland Park, KS. He became Director of Health Services at Perdue Farms, Salisbury, MD, in 1998. Dr. Stewart-

Brown graduated from Iowa State University, Ames, Iowa, in 1985 with his doctorate in veterinary medicine. He is board certified by the American College of Poultry Veterinarians, 1994. Currently, Dr. Stewart-Brown directs the activities of the Health Services department of Perdue Farms. This department includes a full service diagnostic and research lab as well as four regionally based veterinarians. The Health Services Department interacts with all aspects of the Perdue Farms poultry business from Primary Breeders to Processing.

Dr. Peter Timoney, DVM, PhD, MS, Director, Maxwell H. Gluck Equine Research Center, Department of Veterinary Science, University of Kentucky

Dr. Timoney is currently Director of the Maxwell H. Gluck Equine Research Center, Department of Veterinary Science at the University of Kentucky. A native of Dublin, Ireland, Dr. Peter Timoney received his veterinary degree from the National University of Ireland, University College Dublin in 1964. He subsequently earned an MS from the University of Illinois, PhD from the University of Dublin (Trinity College) and FRCVS from the Royal College of Veterinary Surgeons, London. He has held appointments at Cornell University's College of Veterinary Medicine, the Irish Equine Centre and the Irish Department of Agriculture's Veterinary Research Laboratory in Dublin.

Dr. Timoney has been a faculty member in the Department of Veterinary Science, University of Kentucky since 1983. In 1988, Dr. Timoney was named Frederick Van Lennep Chair in Equine Veterinary Science and from 1990-1999, held the position of Chairman of the department. He is an OIE designated world specialist on equine viral arteritis, vice-chair, USAHA Infectious Diseases of Horses Committee, member of the American Horse Council's Health & Regulatory Committee and past President of the World Equine Veterinary Association. Dr. Timoney has worked on various aspects of equine infectious diseases, especially equine viral arteritis, contagious equine metritis, louping ill and equine herpesviruses and has published and presented extensively in this field.

Dr. Gary Weber, PhD, Executive Director, Regulatory Affairs, National Cattlemen's Beef Association

Gary Weber is the Executive Director for Regulatory Affairs for the National Cattlemen's Beef Association (NCBA) in Washington, D.C. He is also the Staff Director for NCBA's Cattle Health and Well Being Committee. Weber works with regulatory agencies and Congress on public-policy issues pertaining to meat inspection and animal health. Since joining NCBA in August, 1994, Weber has worked on meat-inspection reform, beef safety, BSE prevention, regionalization regulations, animal-drug avail ability, and the research titles of the Farm Bill.

From 1987 until 1994, Weber served as the National Program Leader for Animal Science for the Extension Service-USDA in Washington, D.C. Prior to that he served as an Area Livestock Specialist and Adjunct Assistant Professor at the Michigan State University Cooperative Extension Service and the Department of Animal Science. Weber has worked closely with food and animal scientists to publish several papers pertaining to the role of scientists in helping the public make informed decisions. He is a member of the American Society of Animal Science, Sigma Xi, Gamma Sigma Delta, The American Registry of Professional Animal Scientists (ARPAS) and is a Charter Diplomate in the American College of Animal Nutrition. He recently accepted an invitation to serve as an adjunct fellow with the Georgetown University Center for Food and Nutrition Policy. Weber has a B.S. and M.S. degrees in Animal Science from Purdue University and a Ph.D. in Animal Science from Michigan State University.

Mr. Sherman Wilhelm, JD, Director, Division of Aquaculture, Florida Dept. of Agriculture & Consumer Services

Mr. Willhelm received his J.D. from the University of Florida Law School. He joined the Department in 1986 working in the Capitol as Staff Attorney to the Commissioner and held that position for the last 14 years before being promoted to his current position as Director of the Division of Aquaculture in July of 1999. He has brought with him years of experience as the Commissioner's advisor as well as his knowledge and memberships in state, regional and national associations and committees working with the agriculture industry.

Domestic Detection and Surveillance Committee

Chair Dr. Beth Lautner, DVM, MS, Vice President, Science and Technology, National Pork Board
[Biography under Review Panel]

Dr. Bob Good, DVM, Consultant, Tyson Foods

Dr. Good was born and raised on a farm in Texas. He earned his B.S. and DVM from Texas A&M University. He has practiced for 35 years in poultry disease diagnostics and production. Dr. Good is currently the member-at-large of the National Poultry Improvement Plan; chairman of the Arkansas Livestock and Poultry Commission; and is a private poultry consultant.

Dr. William Hueston, DVM, PhD, Professor and Associate Dean, University of Maryland campus of the Virginia-Maryland Regional College of Veterinary Medicine

Dr. Hueston is currently Professor and Director of the Center for Animal Health and Food Safety at the University of Minnesota. During the time of this review, Dr. Hueston was Professor and Associate Dean for the University of Maryland campus of the Virginia-Maryland Regional College of Veterinary Medicine.

Dr. Hueston completed his veterinary training and later a PhD in epidemiology, at the Ohio State University. His career has included private practice, resident veterinarian for a large artificial insemination cooperative, a faculty appointment at Ohio State, and several positions with USDA, APHIS, Veterinary Services. His major areas of focus include animal disease surveillance, risk analysis and animal health policy development.

Dr. John Huntley, DVM, State Veterinarian, New York Department of Agriculture and Markets

Dr. Huntley earned his DVM degree from Cornell University in 1980. He joined a dairy practice on Cortland, NY upon graduation from college. He joined the New York State Department of Agriculture where he served as a field regional veterinarian, Assistant Director and currently Director of the Division of Animal Industry.

He earned a Masters of Public Health/Epidemiology from the State University of New York, School of Public Health in 1999. He is active in several professional organizations including USHA, AVMA, NEUSAHA and the National Assembly of Chief Livestock Health Officials.

Mr. Jim Leafstedt, Chair, South Dakota Animal Industry Board

Jim Leafstedt of Alcester, South Dakota, is a fourth-generation pork producer. His family has owned and farmed Leafstedt Farm for 130 years. The former seedstock farm is now a small farrow-to-finish operation producing club pigs.

Leafstedt's leadership roles in the pork industry are numerous. He has been a member of the pork industry's Swine Health Committee for several years, which gave him the opportunity to provide guidance in issues such as the National Pseudorabies (PRV) Eradication Program, swine identification, swine disease surveillance and the interstate transportation of swine. He has served as the Livestock Conservation Institute's (LCI) PRV Committee Chairman, a LCI Board of Directors Member, United States Animal Health Association PRV Vice-Chairman and Board of Director Member, and a National PRV Control Board Member.

Leafstedt also is extremely involved in his community. Leadership positions within South Dakota include being chairman of the South Dakota Animal Industry Board, and a member of the South Dakota Pork Producers Executive Board, the State Bank of Alcester Board of Directors, the South Lincoln Rural Water Board of Directors, Union Farm Mutual Board Chairman, and the Southeastern South Dakota Cattlemen's Board of Directors.

These experiences have allowed Leafstedt to impact the pork industry positively. He was a major part of the work to get South Dakota's swine herds at zero infection for PRV by the year 2000. As a part of this effort he traveled to Washington, D.C., to secure more funding for PRV and served in several national leadership positions. In 1996, Leafstedt was honored with the Pfizer Productivity Award from the South Dakota Pork Producers Council in recognition of his outstanding contribution to the state's pork industry.

Dr. Bret Marsh, DVM, State Veterinarian, Indiana State Board of Animal Health

Dr. Marsh is a 1984 graduate of the Purdue University School of Veterinary Medicine, and he is currently the Indiana State Veterinarian. Prior to becoming State Veterinarian in 1994, Dr. Marsh was the Swine Division Director for the Indiana State Board of Animal Health with primary responsibility for the Pseudorabies Eradication Program. He is a past President of the Indiana Veterinary Medical Association and the Purdue Veterinary Alumni Association. Dr. Marsh received the Distinguished Alumnus Award from Purdue's School of Veterinary Medicine in 1997.

Dr. Mo Salman, BVMS, MPVM, PhD, Professor of Veterinary Epidemiology, College of Veterinary Medicine and Biomedical Sciences, Colorado State University

Dr. Mo Salman is professor of veterinary epidemiology and director of Center of Veterinary Epidemiology and Animal Disease Surveillance Systems of College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Ft. Collins, Colorado, USA. He is a Diplomate of the American College of Preventive Veterinary Medicine; a Fellow of the American College of Epidemiology; Past President of the Conference of Research Workers on Animal Diseases (CRWAD); Chairman of the US Animal Health Association of Foreign and Emerging Diseases Committee; Chairman of Continuing Education Committee of the Association of Teachers of Veterinary Public Health and Preventive Medicine; an editorial board member of the Journal of Preventive Veterinary Medicine; and the editor of the epidemiology section of the board member of the Journal of Animal Health Review. He has published more than 120 scientific publications on animal diseases and their epidemiology.

Dr. Salman obtained his Ph.D. (1982) from the University of California at Davis in Comparative Pathology, his M.P.V.M (1980) from the same university and his veterinary degree (1973) from Baghdad University. During his professional career, Dr. Salman was recognized by the following awards: Graduate Student Scholarship, California Livestock Research Laboratory; 1980-1983; NSF - US/Indian Scientists Exchange Program, 1991; Fulbright Senior Scholarship to Nepal, 1991; Award in Recognition of outstanding leadership, guidance, and service in veterinary medicine - Association of Teachers of Veterinary Public Health and Preventive Medicine, August, 1992; American Humane Association–Waco F. Childers Award, 1998; and the USDA-APHIS Administrative Award for Animal Health, 2000.

Dr. Scott Wells, DVM, PhD, Associate Professor, Clinical and Population Studies, College of Veterinary Medicine, University of Minnesota

Scott J. Wells is an assistant professor in the Veterinary Public Health Division of the Department of Population and Clinical Sciences at the College of Veterinary Medicine at the University of Minnesota. Until 1998, he was the dairy commodity support analyst for the National Animal Health Monitoring System within the Centers for Epidemiology and Animal Health in APHIS-VS.

Dr. Wells is a veterinary epidemiologist with current research interests in the areas of prevention and control of infectious pathogens of dairy cattle, including Johne's disease and Salmonella. After receiving his DVM from Michigan State University in 1984, he worked in a primarily dairy veterinary practice in Wisconsin. Dr. Wells received his PhD in 1992 from the University of Minnesota and has been board certified in the American College of Veterinary Preventive Medicine since 1997.

Exclusion Activities Committee

Chair Dr. Richard Ross, DVM, PhD, Dean, College of Agriculture, Iowa State University
[Biography under Review Panel]

Dr. Bruce L. Akey, MS, DVM, Chief, Office of Laboratory Services, Virginia Department of Agriculture & Consumer Services

Dr. Akey is currently the Chief, Office of Laboratory Services in the Division of Animal Industry Services of the Virginia Department of Agriculture and Consumer Services. In this capacity he serves as administrator for the state-wide Animal Health Laboratory System. Dr. Akey is a member of both the American Association of Veterinary Laboratory Diagnosticians (AAVLD) and the U. S. Animal Health Association (USAHA). He served as President of the AAVLD in 2000 and is currently Chair of the AAVLD Government Relations Committee, Co-Chair of the Joint AAVLD/USAHA Animal Health Information Systems Committee and Co-Chair of the National Animal Health Reporting System Steering Committee. He has been on the Board of Directors of the Richmond Academy of Veterinary Medicine since 1996 and an adjunct faculty member of Randolph Macon College since 1987.

Dr. Terry Beals, DVM, Texas Animal Health Commission *(retired)*

Beals received his DVM degree from Oklahoma State University in 1964. He practiced in Childress, Texas, for a short time before becoming a field veterinarian with USDA, working in eastern Oklahoma. In 1969, he earned a master's degree in veterinary epidemiology from the University of California at Davis. He served as regional hog cholera epidemiologist for the western United States, MCI coordinator, brucellosis coordinator and resident veterinary medical officer before returning to the field as a veterinary medical officer for USDA.

In 1990, Beals was named state epidemiologist in Texas and a year later was named Executive Director of the Texas Animal Health Commission, a position he held until 2000.

Ms. Leah Becker, Government Relations Representative, National Pork Producers Council

Leah Becker is a Government Relations Representative with the National Pork Producers Council in Washington, DC, representing the pork industry on legislative and regulatory issues of animal health, food safety, research and animal welfare. She coordinates the activities of the Animal Agriculture Coalition and is a representative on the National Animal Health Emergency Management Steering Committee. Leah has a Bachelor of Science in Animal and Plant Systems from the University of Minnesota and grew up on a family pork and row crop operation.

Dr. Linda Logan, DVM, PhD, Executive Director, Texas Animal Health Commission

Dr. Logan was born in San Angelo, Texas, to a ranching family. She attended Texas Tech University, where she received a bachelor's degree in zoology. She then moved on to earn a graduate degree in parasitology from the University of Georgia. She again returned to Texas and obtained a bachelor's in veterinary science and DVM from Texas A&M University. To complete her education, she traveled to the West Coast, where she earned her PhD in comparative pathology from the University of California, Davis.

In addition to her extensive international livestock health experience, particularly in Mali and Kenya, Dr. Logan served for the past four years as the national animal health program leader at the Maryland headquarters of the U.S. Department of Agriculture's Ag Research Service (USDA-ARS), where she collaborated with researchers in Mexico, Central and South America, and Russia. Dr. Logan has been the executive director of the Texas Animal Health Commission since September 2000 and is the Texas State Veterinarian.

Dr. David Zeman, DVM, PhD, South Dakota State University, Head, Veterinary Science Department and Director, South Dakota Animal Disease Research & Diagnostic Laboratory

Dr. Zeman is currently Professor and Head, South Dakota State University - Veterinary Science Department And Director, SD Animal Disease Research and Diagnostic Laboratory. His field is Diagnostic Veterinary Pathology specializing in food animal infectious diseases, Laboratory diagnostics, and Laboratory Administration. He is a Diplomate of the American College of Veterinary Pathologists.

Dr. Zeman has a BS, Animal Science, from North Dakota State University (1976); DVM from Oklahoma State University (1980); and a PhD in Veterinary Pathology, Louisiana State University (1986). From 1980 to 1982, he had a private practice of veterinary medicine in Minnesota. From 1982 to 1986 he was a Research Teaching Assistant and Pathology Resident. From 1986 to present, he has been a member of the faculty of South Dakota State University/ADRDL. Dr. Zeman is currently the president of the American Association of Veterinary Laboratory Diagnosticians. 2001.

Dr. Ernest Zirkle, DVM, State Veterinarian, New Jersey Department of Agriculture

Dr. Ernest W. Zirkle is currently the Dircector of Animal Disease Control at the New Jersey Department of Agriculture, Division of Animal Health. Before joining the staff at the New Jersey Department of Agriculture, Dr. Zirkle was the owner of a mixed practice that specialized in equine reproduction. Additionally, he was an adjunct professor at the Camden and Cumberland Community Colleges. Throughout his career, Dr. Zirkle has held memberships with the Animal Veterinary Medical Association, New Jersey Veterinary Medical Association and United States Animal Health Association.

Dr. Zirkle graduated from Virginia Polytechnic Institute in 1958 with a B.S. in Animal Husbandry. He later went on to receive his Doctorate of Veterinary Medicine at the University of Georgia in 1965.

International Information Committee

Chair Dr. Martha Roberts, PhD, Deputy Commissioner, Florida Dept. of Agriculture & Consumer Services
[Biography under Review Panel]

Dr. J. Lee Alley, DVM, State Veterinarian, Alabama State Department of Agriculture

J. Lee Alley received his DVM from Auburn University. He received additional training in epidemiology at Michigan State University, public health administration at Vanderbilt University and microbiology at Auburn University. His professional career includes appointments with the U.S. Department of Agriculture as brucellosis coordinator, regional epidemiologist, brucellosis epidemiologist, and extension veterinarian at Auburn University. He served as Alabama's State Veterinarian from 1976 until his retirement on February 28, 2001. He has been very active in organized veterinary medicine serving as president of the United States Animal Health Association 1991-1992, two terms in the American Veterinary Medical Association's Council on Public Health and Regulatory Veterinary Medicine, the AVMA-USDA Relations Committee and the Animal Agricultural Liaison Committee. He currently serves as Secretary of the United States Animal Health Association, Governmental Affairs Director of the Alabama Veterinary Medical Association, President-elect of the Southeastern Livestock Exposition and vice president of the Alabama Cattlemen Association.

Dr. Corrie Brown, DVM, Professor, Department of Pathology, College of Veterinary Medicine, University of Georgia

Corrie Brown received her B.S. in Animal Behavior from McGill University and her DVM from Ontario Veterinary College at the University of Guelph. After practicing for a short period in western New York, she did a combined residency/PhD in Comparative Pathology at the University of California at Davis. Board certification (ACVP) and PhD were both attained in 1986. She was an assistant professor of pathology at Louisiana State University briefly before joining the U.S. Department of Agriculture at Plum Island, where, as Head of the Pathology Section, she specialized in the diagnosis and pathogenesis of foreign animal diseases. In 1996, she joined the University of Georgia College of Veterinary Medicine as Professor and Head of the Department of Veterinary Pathology. Her professional interests are in infectious diseases of food-producing animals, emerging diseases, agroterrorism, and international veterinary medicine. She has over 250 scientific publications and presentations. She currently serves as Coordinator of International Veterinary Medicine for the College of Veterinary Medicine.

Dr. Leroy Coffman, DVM, Director & State Veterinarian, Division of Animal Industry, Florida Dept. of Agriculture & Consumer Services

Dr. Leroy M. Coffman, State Veterinarian and Director, Division of Animal Industry, has been with the Florida Department of Agriculture and Consumer Services (FDACS) since June 1996. Prior to his move to Florida, Dr. Coffman served six years as State Veterinarian for the Oregon Department of Agriculture. Previously he worked in private veterinary practice and was an animal health supervisor with Con Agra, Inc., in Greeley, Colorado.

Dr. Coffman earned his Doctorate in Veterinary Medicine from Colorado State University in Fort Collins, where he also received his bachelor's degree in veterinary science. Dr. Coffman is a member of numerous professional associations. Recently he served as President of the Southern Animal Health Association (2000-2001). Dr. Coffman also co chaired the Florida Pest Exclusion Advisory Committee (1999-2001).

Dr. Robert Kahrs, DVM, PhD, Director, National Center for Import and Export, Trade Policy Liaison for Veterinary Matters, USDA *(retired)*

Robert F. Kahrs received his DVM and PhD degrees from Cornell University. He practiced livestock veterinary medicine in New York State for 7 years and then taught epidemiology and infectious diseases to veterinary students while conducting research and field investigations on the epidemiology of bovine viral infections, field evaluation of vaccines, investigation of cattle disease outbreaks, and development of techniques for detecting viruses in semen. He has served on the faculties of veterinary medicine at Cornell University, the University of Florida, and the University of Missouri where he was Dean for 10 years. He then spent 7 years developing animal health policies and negotiating international trade agreements for the USDA. He has written over 100 articles and lectured widely on bovine viral diseases, investigation of animal disease outbreaks and international trade in animals and animal products. He is the author of *Viral Diseases of Cattle* (Second Edition 2001: published by Iowa State University Press). He currently a freelance writer residing in Saint Augustine, Florida.

Dr. R.L. Sibbel, DVM, Manager, Livestock Technical Services, Schering-Plough Animal Health Corporation

Dr. Sibbel is currently the Manager of Technical Services for Schering-Plough Animal Health. In this role he travels extensively, both nationally and internationally, lecturing and training in swine diseases. He has helped license more than 20 vaccines for livestock and poultry in the last 14 years. After graduation from Iowa State University, College of Veterinary Medicine in 1979 he practiced in Nebraska for 7 years. His career in Industrial Veterinary Medicine began in 1987 and continues today looking at the many ways business and science work together to support animal agriculture.

He has had a significant industrial role in the eradication of Pseudorabies in pigs in the United States and recently was elected to the office of Vice-President of the American Association of Swine Veterinarians, to be acting president in 2003. He continues to look at innovative ways to manage livestock and is currently on a special project assignment using electronic identification as a tool to enhance meat production.

Dr. Rick Willer, DVM, State Veterinarian, Arizona Department of Agriculture

Dr. Rick Willer, an Arizona native, is a 1980 graduate of Colorado State University College of Veterinary Medicine and Biomedical Sciences. After completing a one-year internship in Large Animal Medicine at U.C. Davis, Davis, California, he practiced at a large animal veterinary facility in Arizona. After serving for three years as a field veterinarian for the Arizona Livestock Board, he was appointed as the director of the Livestock Disease Control Program. In 1992, he was appointed as Arizona's State Veterinarian.

As the State Veterinarian of a state that borders Mexico, he works closely with both Sister State Sonora and the Mexican federal animal health agency on livestock disease issues. He currently represents the Border States State Veterinarians on the U.S./Mexico Binational Tuberculosis and Brucellosis Committee.

Dr. Willer served as President of the Western State Livestock Health Association in 1993 and 1994 and currently holds the position of Secretary/Treasurer for that group. He is a member of the Arizona and American Veterinary Medical Associations as well as the U.S. Animal Health Association (USAHA). He has served as the Vice-Chairman of the USAHA Food Safety Committee and is currently serving as the Vice-Chairman of the Tuberculosis Committee.

Response Committee

Chair Dr. Donald Lein, DVM, PhD, Director of Diagnostic Laboratory, College of Veterinary Medicine, Cornell University
[Biography under Review Panel]

Dr. Alex Ardans, DVM, MS, Director, California Animal Health and Food Safety Laboratory, University of California

Alex Ardans is Director of the California Animal Health & Food Safety Laboratory and a professor in the Department of Medicine & Epidemiology, School of Veterinary Medicine, University of California, Davis. Ardans joined the UC Davis faculty in 1969. He is a native of Nevada and attended the University of Nevada, Reno, before transferring to UC Davis where he received his BS and DVM. Ardans spent 1 year as an intern in Large Animal Clinic, College of Veterinary Medicine, Colorado State University followed by 3 years in the Large Animal Clinic, School of Veterinary Medicine, University of Minnesota, where he received a Masters degree in Veterinary Virology. He has taught infectious diseases of large animals and published in that area. Currently he is Director of CAHFS, a statewide system of five laboratories dedicated to the protection of the health of the state's livestock & poultry and the protection of the public health from diseases common to humans and animals.

Dr. Robert Eckroade, DVM, Associate Professor, Avian Medicine and Pathology, University of Pennsylvania

Dr. Robert J. Eckroade received his Veterinary Degree at the University of Georgia in 1962, a Masters Degree in Pathology in 1969 and a Doctorate in Pathology and Veterinary Science in 1972 at the University of Wisconsin.

He is currently the Head of the Laboratory of Avian Medicine and Pathology at the University of Pennsylvania College of Veterinary Medicine and Associate Professor of Avian Medicine and Pathology. He is also the Secretary-Treasurer and CEO of the American Association of Avian Pathologists, a Charter Diplomate and Board Member of the American College of Poultry Veterinarians. He is Resident Director of the Pennsylvania Animal Diagnostic Laboratory System University of Pennsylvania and Poultry Representative of the American Veterinary Medical Association's Political Action Advisory Committee. He was involved in the development of the Northeastern Conference of Avian Diseases Egg Quality Assurance Program for the reduction of *Salmonella* Enteritidis in egg laying birds and in the development of PEQAP (The Pennsylvania Egg Quality Assurance Program) which may be used as a model for the nation's egg quality assurance program. He is also involved in the United States Animal Health Association's development of the Voluntary National Standardized SE Reduction Program for Eggs. Dr. Eckroade is a member in good standing of the following organizations: American Veterinary Medical Association, American Association of Food Hygiene Veterinarians, American Association of Veterinary Laboratory Diagnosticians, The United States Department of Agriculture Live Bird Market Working Group, The Pennsylvania Avian Influenza Work Group, the PennAg Industries Association and The Poultry Science Association. Dr. Eckroade is also the United States Representative to the Board of Directors of the World Veterinary Poultry Association and Chairman of the United States Animal Health Association's Transmissible Diseases of Poultry Committee. He is also a member of the United States Animal Health Association's Committee on Food Safety, *Salmonella* Enteritidis Committee and elected as the Northeastern Representative to the Executive Committee.

Dr. John Fischer, DVM, Director, Southeastern Cooperative Wildlife Disease Study, College of Veterinary Medicine, University of Georgia

Dr. John R. Fischer is the Director of the Southeastern Cooperative Wildlife Disease Study (SCWDS) at the University of Georgia's College of Veterinary Medicine. He is a veterinary pathologist specializing in the population health of free-ranging wildlife. As a SCWDS scientist, he works with the wildlife management agencies of 16 states, and the U.S. Departments of Agriculture and the Interior to determine the significance of disease in free-ranging wildlife as well as interrelationships with disease in humans and domestic animals. Specific research interests include zoonotic pathogens such as *Cryptosporidium*, *Escherichia coli* O157:H7, and West Nile virus, as well as emerging diseases in wildlife including mycoplasmal conjunctivitis and vacuolar myelinopathy of wild birds. Dr. Fischer serves as Chair of the Fish and Wildlife Health Task Force of the International Association of Fish and Wildlife Agencies, Vice Chair of the Committee on Wildlife Diseases of the U.S. Animal Health Association, and represents North America on the Wildlife Disease Working Group of the Office International des Epizooties (OIE).

Mr. Wayne Godwin, Second Vice President, Florida Cattlemen's Association

Graduated Lake Placid High School-1971. Has been married for 29 years and has two children. Active member First Baptist Church of Lake Placid. Has worked for Westby Corp. 30 years; management since 1979, General Manager since 1999. Past President - Hardee County Cattlemen's Assos. Past School Board Member - Hardee County. Presently serving at AITC. Committee Member USAHA. President Elect - Florida Cattlemen's Association. He and his wife are 5th generation Floridians. Their children are 6th generation Floridians. Second generation management for Westby Corp.

Dr. Heidi Hamlen, DVM, MS, California Department of Food and Agriculture

Dr. Heidi Hamlen attained an A.S. degree in allied health and a B.S. degree in biology from the University of New Mexico. She then received a Doctor of Veterinary Medicine degree at Colorado State University. After veterinary school, she pursued further training in large animal medicine and surgery with primary interest in the herd health of dairy and beef cattle, sheep, swine, and horses. She completed an Ambulatory Internship at Cornell University, and a Field Service Residency and a Master of Science degree in Herd Medicine at the University of Saskatchewan, Canada. Dr. Hamlen's Master's thesis was titled the "Epidemiologic, immunologic, and hematologic characterization of *Streptococcus equi* infection in foals". She is board certified in the American College of Veterinary Preventive Medicine. Since completing her veterinary training, she has worked as staff veterinarian and Acting Clinical Director in the Department of Comparative Medicine at the Stanford University School of Medicine. At Stanford she managed veterinary services for an average daily census of 60,000 animals encompassing 26 species. She then joined the Animal Science Department at California State Polytechnic University - San Luis Obispo as an Associate Professor and taught Production Medicine and Anatomy and Physiology. Dr. Hamlen's research interests include the epidemiology of bacterial and parasitic diseases. In 1998, she joined the Animal Health Branch of the California Department of Food and Agriculture as lead of the Emergency Program. She is involved in preparedness and response activities for natural disasters and emergency animal disease outbreaks.

Dr. Sam Holland, DVM, State Veterinarian, South Dakota Animal Industry Board

Dr. Sam Holland, State Veterinarian is a 1971 graduate of the University of Minnesota College of Veterinary Medicine and spent his entire practice life in South Dakota, limiting his practice to beef cattle and horses. In 1986 he was appointed Assistant State Veterinarian for the Board (known as the Livestock Sanitary Board). In March of 1995, Dr. Holland was named State Veterinarian by the South Dakota Animal Industry Board. The 7 member Animal Industry Board has 41 full time employees located throughout the state including a staff of 6 veterinarians.

The Board, under Dr. Holland's direction, has broad responsibilities over the multitude of animal industries in the state, including animal health, marketing and dealer regulation, state meat inspection, importation of animals, non-domestic animal regulation, inhumane treatment laws, and 2 laboratories for surveillance for disease in slaughtered animals. Dr. Holland also serves as Executive Secretary for the South Dakota Veterinary Medical Examining Board. Dr. Holland is also current Chair of the Brucellosis Committee of the USAHA.

Dr. Kenneth Olson, PhD, Dairy and Animal Health Consultant

Dr. Ken Olson is a consultant in the dairy and animal health areas. Previously he served as Dairy and Animal Health Specialist in the Public Policy Division of the American Farm Bureau Federation where he directed the federation's dairy commodity activities and coordinated their animal health work. He also worked in the Animal Welfare, Hay and Forage, Ag Research, Biotechnology, Animal Drug Availability and animal product Food Safety areas. Previous to that he was a dairy specialist and Extension Professor at the University of Kentucky. Dr. Olson received his bachelor's degree in animal science from the University of Wisconsin-River Falls. He then earned his master's degree and doctorate in dairy science from the University of Wisconsin-Madison, majoring in dairy cattle breeding with minors in genetics and statistics.

Olson currently serves as vice chair of the Board of Directors of the National Institute for Animal Agriculture (NIAA), chair of the Dairy Quality Assurance (DQA) Education Project Board of Trustees, vice chair of the USAHA District at Large, and treasurer of the National Johne's Work Group. He is a member of the McDonald's Animal Welfare Council, the Executive Planning Committee for FAIR 2002, a member of the National Animal Health Emergency Management Steering Committee, the board of the Agricultural Databases for Decision Support (ADDS) Center Inc. and the Stakeholders Committee for the U.S. Dairy Forage Research Center. He is a member of the American Dairy Science Association (ADSA), the Council on Agricultural Science and Technology (CAST), the American Association for the Advance of Science (AAAS), the American Forage and Grassland Council (AFGC), the National Mastitis Council (NMC), and the U.S. Animal Health Association (USAHA).

Dr. David Thain, DVM, State Veterinarian, Nevada Department of Agriculture, Bureau of Animal Industry

David S. Thain, DVM, Nevada State Veterinarian and Administrator Division of Animal Industry, Nevada Dept. of Agriculture. Dr. Thain is a 1980 graduate of Colorado State University Veterinary Schoool. He practiced in Wyoming, Montana and the western states before being appointed state veterinarian of Nevada in 1998.

Dr. Larry Williams, DVM, State Veterinarian, Bureau of Animal Industries, Nebraska Department of Agriculture

Dr. Williams has been Nebraska's State Veterinarian for thirteen years and the Area VMO, USDA/APHIS/VS southeast Nebraska for 2 years. He has had a large animal practice, north central Nebraska for 17 years. He earned his DVM degree from Kansas State University in 1968. He was USAHA president in 1997 and received the National Assembly of Chief Livestock Health Officials Annual Award in 1998. Served on Secretary's Advisory Committee for Foreign Animal and Poultry Diseases from 1997 to 1998; served on Quadrilateral Review Committee in 1998; served on USDA/APHIS/VS Futures Committee in 1997; served on National Animal Health Emergency Management Systems Steering Committee, 1996-1999.

Ex-Officios

Mr. Richard W. Kirchhoff, Executive Vice President & CEO, NASDA

Richard (Rick) Kirchhoff was selected as Executive Vice President and CEO of the National Association of State Departments of Agriculture (NASDA) by the Board of Directors in May, 1992. In his capacity as chief executive officer, Rick manages the operations of the Washington, D.C. office and is responsible for implementation of all NASDA programs and policies as approved by the Board of Directors or the Membership.

Prior to joining NASDA, Rick served as Vice President of the Smokeless Tobacco Council, a private industry trade association, where he was responsible for directing the Council's state government relations division, consisting of an internal staff of four and a national network of 52 contract lobbyists.

Rick came to Washington in 1983, to become legislative assistant to former U.S. Representative Larry J. Hopkins of Kentucky, after having served as the congressman's district director for three years. In 1984, Rick joined the staff of the House Agriculture Committee where he served for three and one half year*s before moving to the Smokeless Tobacco Council.

Rick is a native of Lexington, Kentucky and earned both his Master's and Bachelor's degrees from the University of Kentucky.

Dr. Jim Watson, DVM, Director, Board of Animal Health, Mississippi Department of Agriculture and Commerce

Dr. Watson earned his B.S. in Dairy Science and DVM from Mississippi State University in 1982. He has been the State Veterinarian for the State of Mississippi since 1998. From 1982 to 1998, he had a bovine & equine practice.

Resource Coordinators

Lead Mr. Patrick S. Atagi, Manager, Legislative & Regulatory Affairs, NASDA

Patrick S. Atagi handles legislative and regulatory affairs at the National Association of State Departments of Agriculture. His responsibilities at NASDA include being the chief trade specialist, domestic contact and staff representative for the Tri-lateral Accord of NAFTA Members and NASDA liaison to the Coalition of American Agriculture Producers. Mr. Atagi was also responsible for organizing a delegation of Commissioners, Secretaries and Directors of State Department of Agriculture to the World Trade Organization Ministerial. He was also a collaborator on the pilot Cost of Production insurance plan implemented by USDA. Prior to working at NASDA, Mr. Atagi was the Director of Government Affairs and Trade Policy at United Fresh Fruit & Vegetable Association, the Public Affairs Manager at U.S. Apple Association, and a Legislative Assistant to U.S. Senator Mark O. Hatfield. Additionally, from 1989-1991 he was an agroforester for the U.S. Peace Corps in the Central African Republic. Mr. Atagi received his B.A in Public Administration and Psychology in 1989 from the University of Notre Dame.

Mr. Bruce Andrews, Andrews, Doyle Associates

Bruce Andrews is President and one of the principals in the agricultural and natural resource management consulting firm of Andrews, Doyle and Associates. Andrews has a long credible history of innovation and has been a professional manager throughout his entire career, noted for his broad vision and strategic planning, as well as being able to translate those plans into on-the-ground programs within budget and ahead of schedule. Andrews gained a practical understanding of how things work when he and his wife, soon after college, established their own family farming operation in northeastern Oregon. Bruce's management experience and project development skills achieved their greatest impact while Director of Agriculture for the State of Oregon for ten years under three separate governors.

Active in national policy issues, Andrews has led the National Association of State Departments of Agriculture, served as chairman of the congressionally-directed USDA task force on strategic planning and facility reviews, and is a member of the USDA's Emerging Markets Committee.

While at the Port of Portland, he directed corporate market development efforts which included oversight of the Port 's overseas offices in South Korea and Japan. In addition to market development activities, he was charged with the Port's public affairs responsibilities.

Andrews has been recognized by his peers for his leadership, honored with the Distinguished Service Award from Oregon State University and given numerous awards and citations for his work on behalf of agriculture through market and environmental program development.

Andrews was recently appointed by Governor Kitzhaber and confirmed by the Oregon State Senate to serve as a Commissioner for the Oregon State Lottery.

Ms. Becky Doyle, Andrews, Doyle Associates

After serving eight years as Director of the Illinois Department of Agriculture, from 1991 to 1999, Becky Doyle joined Bruce Andrews in a consulting firm that specializes in agriculture policy and marketing projects. Doyle is a partner in her husband's pork production operation and is still involved in her family's farm in western Illinois. A lifelong investment in livestock production and eight years of regulatory administration gave her a background and knowledge base to efficiently deal with this Review's issues.

Doyle is a graduate of the University of Illinois and a continuing student in International Affairs at Washington University, St. Louis. She is a former board member of the National Association of State Departments of Agriculture and is currently serving as board member of the Farm Foundation. She is also a member of several agriculture and civic organizations.

Dr. Al Strating, Associate Adminstrator, USDA, APHIS *(retired)*

Al Strating, DVM, is a collaborating consultant for Animal Health Solutions International, LLC. He is a veterinarian with a Masters Degree in microbiology, and has dedicated much of his career to national and international management and control of major livestock diseases while working for the USDA, Animal and Plant Health Inspection Service (APHIS) in several capacities, including Associate Administrator, Director for Science and Technology, Regional Director, and Director of the National Veterinary Services Laboratories. He has also worked as a veterinary practitioner, and as a consultant for USDA, USAID, and NASDA. Current areas of study include heartwater disease in Africa and the Caribbean, and evaluation of the adequacy of USDA measures for keeping the U. S. free of exotic animal diseases. Dr. Strating has published over 30 scientific articles in the fields of microbiology, immunology, epidemiology, and food safety.

APHIS Steering Committee

Lead Dr. Gary Brickler, DVM, USDA, APHIS, VS, Area Veterinarian-In-Charge, Alaska/Hawaii/Washington Area

Dr. Brickler earned his Doctor of Veterinary Medicine from Purdue University; his Bachelor of Science from University of Kentucky. Upon completion of veterinary college, entered private mixed animal practice in Colorado. Joined the USDA in June 1982. First assignment with Veterinary Services was as a section veterinary medical officer in Chino, CA. Served as Animal Care Specialist in the Western Region, then as Animal Care sector supervisor. Selected as Area Veterinarian in Charge for Alaska and Washington in 1991, following seven months active military duty during Desert Storm. Assumed responsibility for Hawaii in October 1999.

Dr. Randall Crom, DVM, Senior Staff Veterinarian, Emergency Programs Staff, USDA, APHIS, Veterinary Services

Dr. Crom is a senior staff veterinarian with the Emergency Programs staff in Veterinary Services (VS) of the USDA's Animal and Plant Health Inspection Service (APHIS). In February 2000 he was named the West Nile virus coordinator for APHIS-VS. From 1997 to 1999 Dr. Crom was seconded by APHIS to the Cluster for Communicable Diseases of the World Health Organization in Geneva, Switzerland. While in Geneva, he worked on zoonotic disease issues ranging from antimicrobial resistance related to use in food-producing animals to the outbreak of avian influenza in Hong Kong. Since joining APHIS-VS in 1984, he has worked in field programs to eradicate brucellosis, tuberculosis and ticks from cattle in Puerto Rico. Dr. Crom also served as an epidemiologist with the Center for Emerging Issues of the Centers for Epidemiology and Animal Health (CEAH) in Fort Collins, Colorado, from 1991 to 1997. Dr. Crom received training and experience in epidemiology as an Epidemic Intelligence Service (EIS) Officer for the Centers for Disease Control and Prevention (CDC) from 1986 to 1988. He graduated from Iowa State University's College of Veterinary Medicine in 1980.

Dr. Jose Diez, DVM, Assistant Director, Eastern Region, USDA, APHIS, Veterinary Services

Dr. Diez earned a DVM and BS (Animal Science) from Cornell University, Ithaca. He is certified and licensed in New York and Puerto Rico as a veterinarian and by OPM for the Senior Executive Service. He is a member of the United States Animal Health Association and the Puerto Rico Veterinary Medical Association. Dr. Diez is currently the Assistant Regional Director. He directs federal animal health programs in 18 northern states in the Eastern Region of Veterinary Services. From 1996 to 2000, he was the Co-Director of Technical Support for the Eastern Regional Emergency

Animal Disease Eradication Organization. Major responsibility was to support emergency preparedness and response activities. From 1996 to 1999, he was the Area Veterinarian in Charge (AVIC) directing federal animal health programs in Puerto Rico/US Virgin Islands and North Carolina. From 1989 to 1995, he directed the Puerto Rico Tick Eradication Program responsible for a $14 million (700 employee) tick eradication program. From 1986 to 1989, he served as Station Director at one of the program field locations. From 1983 to 1986, he was the Field Veterinary Medical Officer and Puerto Rico Area Epidemiologist (Brucellosis and Tuberculosis). From 1982 to 1983, he was the Puerto Rico State Veterinarian. From 1978 to 1983, he was a Small Animal Practitioner, Puerto Rico. Dr. Diez is a Foreign Animal Disease Diagnostician and is trained in Intercultural Communications and Negotiations (Mexico &Latin America). He has earned Six performance based awards since 1983 and is a recipient of superior overall performance ratings 1.

Dr. Rick Hill, DVM, Director, Licensing and Policy Development, USDA, APHIS, Veterinary Services

Richard E. Hill, Jr. obtained his degree in Veterinary Medicine in 1983 from Michigan State University, Lansing, Michigan. He obtained his M.S. degree in Veterinary Preventive Medicine at Iowa State University, Ames, Iowa, in 1990. He is a Diplomate in the American College of Veterinary Preventive Medicine. In 1985, he joined the USDA as a field Veterinary Medical Officer with the APHIS Public Veterinary Practice Career Program and was assigned to the Biologics Program in 1986. He worked as an Inspector, Epidemiologist, and Team Leader for the Biologics Program where he was involved in regulatory compliance and coordination of the pharmacovigilance program. In 1995, he was selected as Quality Assurance Manager, responsible for overseeing the Quality Assurance Program at the National Veterinary Services Laboratories and Center for Veterinary Biologics-Laboratory. In November 1998, he was named Director of the Center for Veterinary Biologics-Licensing and Policy Development, Veterinary Services.

Dr. Andrea Morgan, DVM, Associate Director, Animal Health Programs, USDA, APHIS, Veterinary Services

After practicing as a small animal/exotic animal practitioner in West Covina, CA, Dr. Morgan began her career with APHIS in 1985 as a veterinary medical officer hired as a participant in APHIS—first class of the Public Veterinary Practice Career Program (PVPCP). Her training location was Logan, UT. In 1986, Dr. Morgan joined the staff in APHIS headquarters, Hyattsville, MD, that eventually became APHIS-Recruitment and Development (R&D) division. While working in that division, she managed the PVPCP from 1986 to 1989. From 1989 to 1997, Dr. Morgan worked as a Senior Staff Veterinarian in the National Center for Import and Export, Veterinary Services.

In October of 1997, Dr. Morgan was appointed as the Acting Director of Organizational and Professional Development, serving in this position until March of 1999. This organization was responsible for technical training in plant health and animal health for APHIS employees; training in leadership and supervisory training; and conflict resolution and mediation in APHIS.

From March of 1999 until October of 1999, Dr. Morgan served as the APHIS Invasive Species Coordinator. In October of 1999, she assumed the responsibilities of the Associate Director of Animal Health Programs, Veterinary Services, APHIS.

Dr. Morgan received a Bachelors of Agriculture degree from the University of Missouri in 1982. In 1985, she received her Doctor of Veterinary Medicine degree from the University of Missouri and, in 1990, received a Master's in Education and Human Development from George Washington University. Dr. Morgan was born and raised in St. Louis, MO. She resides in Laurel, MD.

Dr. Robert Nervig, DVM, Director, Eastern Region, USDA, APHIS, Veterinary Services

Thirty years experience in various aspects of animal health, including evaluation of animal vaccines, veterinary laboratory diagnostic medicine and State-Federal activities to control and eradicate animal diseases. Experience has been both as a scientist and as a manager. Former director, Eastern and Western Regions, USDA-APHIS, VS. Guest lecturer at Iowa State University from 1978 until 1986 at the College of Veterinary Services. Dr. Nervig received a Master's degree in Microbiology at the University of Georgia, Athens, GA, and a Doctorate's degree in Veterinary Medicine at Iowa State University, Ames, IA.

Mr. Robert Spaide, Asst. Director, Safeguarding & Pest Mgmt., USDA, APHIS, Plant Protection & Quarantine

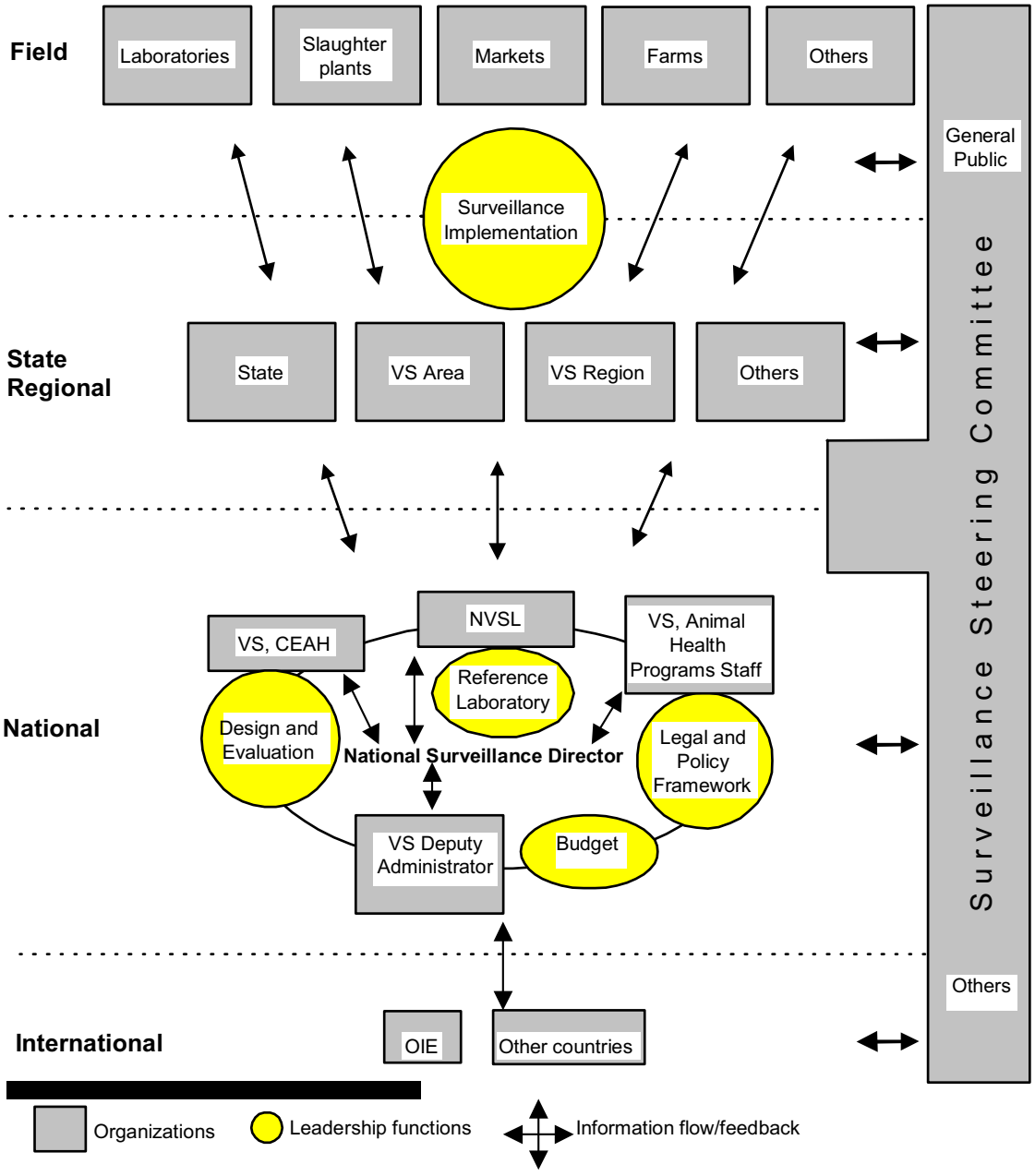
Mr. Spaide began his career with USDA in 1970 as a plant health field officer in Amsterdam, New York. In 1980 he accepted a position as Officer-In-Charge for Pennsylvania and in 1984 transferred to PPQ headquarters in Hyattsville, MD. Since that time he has served as a staff officer, Senior Staff Officer for Strategic and Operational Planning, Assistant Director for International Services Operational Programs, technical advisor for the development of environmental documentation, Assistant Deputy Administrator for Phytosanitary Issues Management, Assistant Director- Invasive Species and Pest Management, and currently Director, Surveillance and Emergency Program Planning and Coordination. Mr. Spaide received an Associate Degree of Forestry from Paul Smith's College in 1968 and Bachelors of Biology from Stephen F. Austin State University in 1970.

Carol Tuszynski, PhD, Center Leader, Center for Emerging Issues, USDA, APHIS, Veterinary Services

Carol Tuszynski received a Masters in Agricultural Economics from Cornell University in 1983. Carol joined the United States Department of Agriculture in 1984 as an economist for the Human Nutrition Information Service. She transferred to the Animal and Plant Health Inspection Service (APHIS) in 1988. Carol has held several positions with APHIS. She currently serves as the Leader of the Veterinary Services' Center for Emerging Issues in Fort Collins, Colorado.

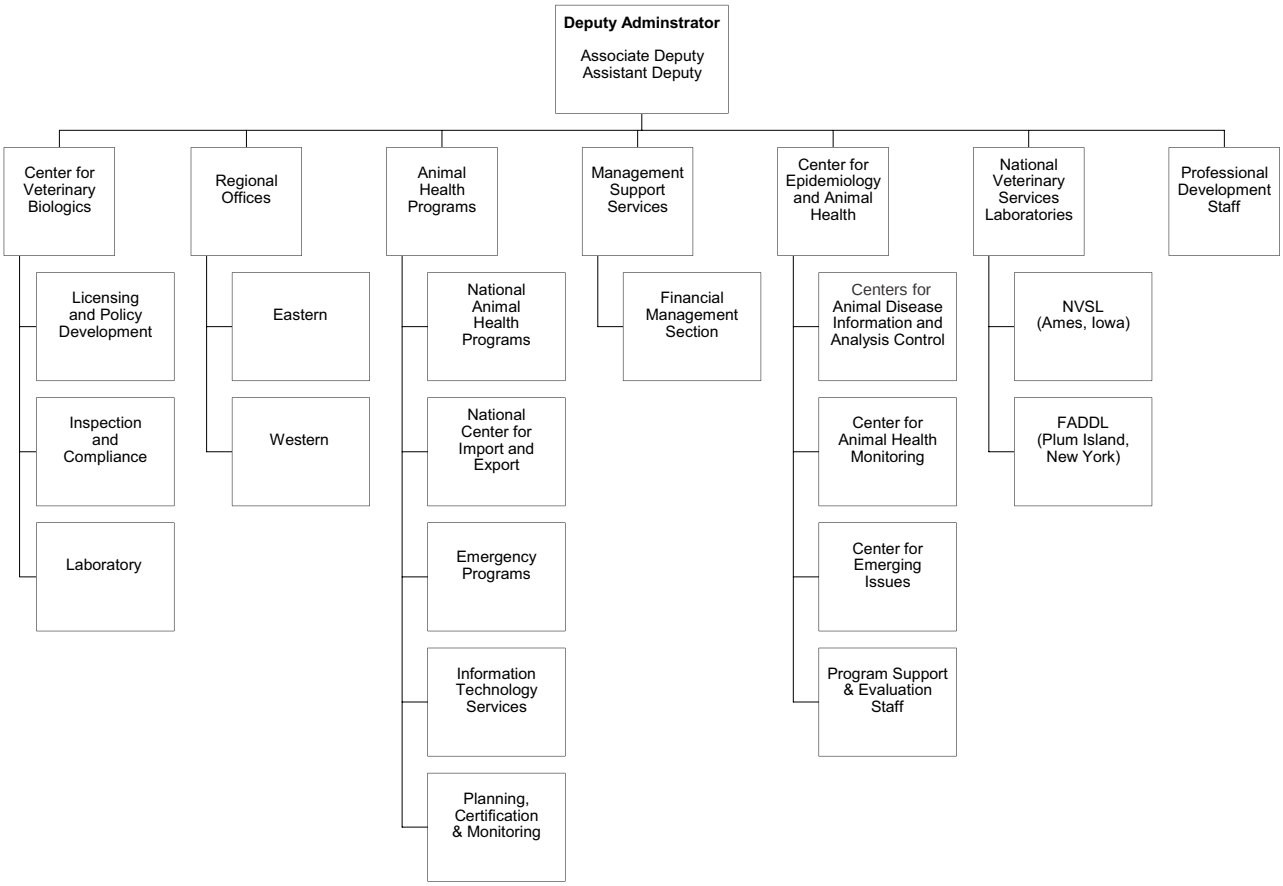
Appendix V: National Surveillance System

National Surveillance System



× Adapted from One Page Plan for More Comprehensive and Integrated Animal Health Surveillance, Dr. Mark Schoenbaum, Dr. Adam Grow, Veterinary Services, May 3, 2001

Appendix VI: APHIS' Veterinary Services Organization



Source: The APHIS-VS website, http://www.aphis.usda.gov/vs/vs_org.htm (October 12, 2001).

FACTSHEET

Veterinary Services

United States Department of Agriculture

Animal and Plant Health Inspection Service

August 1998

APHIS' Role in Animal Health and Trade

Protecting agriculture today is a challenge that reaches beyond national, political, and geophysical boundaries. The U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) protects and promotes U.S. agriculture by keeping agricultural pests and diseases from entering the country, facilitating agricultural exports, and ensuring science-based regulations in agricultural trade.

Veterinary Services (VS) is the animal health arm of APHIS. VS is dedicated not only to protecting, sustaining, and improving the health, quality, and productivity of the Nation's herds and flocks of livestock and poultry but also to facilitating agricultural trade.

VS strives to serve the livestock producers of this country and also consumers of animal products and citizens concerned about public health and environmental safety. Achieving program goals cannot take place in a vacuum: it requires cooperation with others. To enhance cooperation, VS fosters continuous communication among veterinary professionals in State and foreign governments, industry organizations, and private practice.

VS employees—more than 30 percent of whom have advanced degrees in such specialties as veterinary science, epidemiology, and public health—perform their duties in all parts of the country. Management and staff specialists work at APHIS' headquarters in and near Washington, DC. Currently, the field force operates out of four regional headquarters with field offices in nearly every State, generally in the capital. In the next 2 to 4 years, USDA Secretary Dan Glickman's regional consolidation initiative will streamline the agency's regional field structure into two new regional hubs: an eastern hub in Raleigh, NC, and a western hub in Fort Collins, CO.

Protecting America's Animal Health

Foreign Animal Disease Prevention

If a foreign animal disease became established in American livestock and poultry, the economic consequences to producers and consumers would be severe. For example, eradication of a highly pathogenic avian influenza in the United States, following an outbreak in 1983–84, resulted in the destruction of more than 17 million birds and cost taxpayers nearly $65 million. This major outbreak also affected consumers causing the cost of poultry and eggs to increase by about one-third in just 6 months.

If an exotic disease such as this were to breach U.S. borders, VS officials would assess the threat and decide how best to respond. One option would be to activate one of two Regional Emergency Animal Disease Eradication Organizations (READEO's), operating out of Raleigh and Fort Collins.

READEO team members are highly trained and ready to fight exotic diseases and parasites anywhere in the United States. READEO personnel confirm the presence of exotic disease, inspect infected and exposed animals, and appraise the value of animals that may have to be destroyed. These employees conduct vaccination programs and epidemiologic studies and are trained to dispose of animal carcasses, clean and disinfect premises, set and enforce regulations against disease spread, and control disease carriers.

The two READEO's conduct regular practice exercises to ensure that workers remain prepared. A recent enhancement to the READEO is a three-member Early Response Team (ERT). The ERT can be deployed anywhere in the United States within 24 hours to assess a disease situation that may lead to the activation of a READEO. In the event of an activation, team members can quickly set up field operations to lead an eradication effort.

Responding to a disease outbreak requires cooperation among VS personnel, State animal health officials, industry, and the public. VS takes the lead in coordinating the efforts of these groups and ensures that the methods for eradicating an outbreak remain current as new technology and research become available.

For example, in December 1996, APHIS sent an ERT to several farms in southeastern Iowa to investigate a disease that was causing sows to abort. The team worked with veterinary practitioners, university diagnostic laboratories, USDA's National Animal Disease Center, the National Pork Producers Council, and the Iowa Pork Producers Association to determine that the disease was an acute form of porcine reproductive and respiratory syndrome, a domestic disease of swine. These actions have led to additional cooperative studies to better understand this acute form of the disease.

Since 1966, VS has successfully eliminated from the United States outbreaks of Venezuelan equine encephalitis, sheep scabies, exotic Newcastle disease, hog cholera, highly pathogenic avian influenza, and screwworms.

Control and Eradication of Domestic Animal Diseases

In addition to preventing the introduction and spread of foreign animal diseases, VS operates programs to control and eliminate certain domestic diseases of cattle, swine, poultry, sheep, and other livestock. These programs work to make U.S. livestock desirable for export to other countries. When such domestic livestock diseases are found, VS regulates the interstate movement and transport of infected and exposed animals to stop further spread of the diseases.

VS' brucellosis eradication program is in its final stages. Since 1934, APHIS has been working cooperatively with the livestock industries and State animal health authorities to eradicate brucellosis from the United States. APHIS' goal is to have no **cattle** or domestic **bison** herds under quarantine for brucellosis by the end of 1998. As of April 1998, there were 10 affected herds in 2 different States. Forty-three States, Puerto Rico, and the U.S. Virgin Islands have already achieved brucellosis-free status, and another five States are in the qualifying period with no known infection. In order to reach this status, a State's domestic cattle and bison populations must be free of infection for 12 consecutive months.

VS is also working to eradicate tuberculosis in cattle and bison. And, VS "tick-riders" patrol the Texas–Mexican border on horseback to prevent the reintroduction of cattle-fever ticks and their associated disease, bovine babesiosis.

While hog cholera has been eliminated from the United States, VS continues to put a high priority on the eradication of pseudorabies and brucellosis from the domestic **swine** population.

The National Poultry Improvement Plan certifies the health of **poultry** breeding flocks, specifically for diseases such as pullorum disease, fowl typhoid, and certain mycoplasmas.

The Voluntary Scrapie Flock Certification Program is a cooperative effort between VS, industry representatives, accredited veterinarians, and State animal health officials. The program provides participating producers with the opportunity to protect their **sheep** from scrapie and to enhance the marketability of their animals through certifying their origin in scrapie-free flocks.

VS helps prevent **equine** diseases in thoroughbreds, pleasure horses, and show horses and protects them from glanders, dourine, and contagious equine metritis through import testing and quarantine procedures.

National Animal Health Monitoring System

Besides helping individual VS programs manage their animal-disease related information, VS operates the National Animal Health Monitoring System (NAHMS).

NAHMS is a cooperative effort to gain health status information about various species of farm animals to benefit producers, exporters, researchers, practicing veterinarians, and local, State, and Federal animal health officials. Information from NAHMS surveys enables producers to improve farm management practices, especially in disease control. Additionally, researchers and veterinarians can access the data base for comparative studies of disease incidence, risk assessment, and preventive treatment techniques.

National Veterinary Services Laboratories

VS' National Veterinary Services Laboratories (NVSL), located in Ames, IA, and Plum Island, NY, provide laboratory support for VS' animal disease control and eradication programs. When a disease diagnosis is necessary, tissue and blood samples are submitted to NVSL. Domestic disease diagnoses are conducted in Ames; tissues from animals suspected of having foreign animal diseases are examined at Plum Island's high-security facility.

Laboratory workers also assist in quality control of animal vaccines and related products. VS laboratory technicians test samples from production runs at manufacturers licensed by VS' Center for Veterinary Biologics. Any biologics that don't meet Federal standards are kept off the market.

Expanding Trade

With the implementation of trade-liberalizing agreements, such as the General Agreement on Tariffs and Trade and the North American Free Trade Agreement, and with the creation of the World Trade Organization, the demands facing APHIS have changed dramatically. The volume and complexity of sanitary and phytosanitary issues surrounding trade and the workload associated with regulating imports and facilitating exports are increasing by leaps and bounds. APHIS is in a unique position regarding trade and is striving to carefully balance its responsibilities to safeguard America's agricultural resources with its efforts to open doors for U.S. agricultural exports.

VS' National Center for Import and Export (NCIE) fosters trade in animals and animal products by ensuring safety and fairness in U.S. agricultural trade relations with other countries. NCIE accomplishes this goal by applying equitable, science-based standards of protection to and for agricultural commodities based on international standards, risk analysis, and the use of innovative risk management strategies.

NCIE adopted risk-based regional import requirements in accordance with the World Trade Organization Sanitary and Phytosanitary Agreement. The regulations center around two key points: (1) regionalization and (2) expanded risk assessment and classification. The concept of regionalization is founded on the idea that import requirements should be based on geography and science rather than politics. Risk assessment consists of identifying risk factors and evaluating their seriousness.

The framework NCIE established allows for assessment of animals and animal products for import into the United States based on the status of a region, rather than the entire country. It also established procedures by which regions may request permission to export animals and animal products to the United States under specified conditions, based on the region's disease status.

These new regulations have opened new world markets to U.S. agricultural industries as well as allowed farmers in foreign countries to sell their livestock and products to American consumers. For example, in May 1997, APHIS recognized the Mexican State of Sonora as free of hog cholera and allowed Sonoran producers to export to the United States fresh, chilled, and frozen pork under certain conditions. Prior to the adoption of VS' regionalization policy, such an area would not have been able to export fresh pork to the United States. One month later, APHIS announced its final rule to allow the importation of fresh or frozen beef from Argentina, finding the country to be a low-risk region for foot-and-mouth disease and rinderpest. Previously, assessments were absolute, not allowing imports from countries that had any incidence of disease.

Facilitating Exports

VS' export certification efforts motivate foreign countries to trust that they are receiving healthy, pest- and disease-free U.S. agricultural shipments.

VS requires foreign countries to abide by strict animal health standards and is committed to managing the export of healthy animals to them in return. VS works with foreign animal health officials to develop protocols that specify the conditions for certifying and testing animals and animal products designated for export. VS employees work closely with exporters, breeders, and private veterinary practitioners to qualify animals and animal products for export.

In Fort Collins, VS has a data base called the International Regulation Retrieval System that lists the animal health requirements of other countries. Both exporters and veterinarians can access this retrieval system free of charge if they have the necessary computer equipment.

Disease Exclusion Through Testing Imports

VS' efforts on the homefront to protect American livestock ensure that U.S. consumers can continue to enjoy the tastes of American products while still sampling the tastes of the rest of the world. VS regulates the importation of live animals, poultry, pet birds, and animal products, such as meats, cheeses, casein, gelatins, certain animal hides and racks, and germ plasm—both semen and embryos. VS carefully monitors all of these commodities for foreign animal diseases, such as avian influenza or hog cholera, diseases that could threaten U.S. livestock populations. For example, countries that have outbreaks of foot-and-mouth disease are not allowed to export fresh, chilled, or frozen meats to the United States. However, such meat products can be shipped into this country if they have been commercially heat processed or cured according to APHIS standards. VS establishes similar

requirements for countries where other animal diseases exist.

Certain live animals, including pet birds, imported from foreign countries may need to be quarantined and examined in USDA animal import centers located in New York, Miami, or Los Angeles before entering the United States to prevent introduction of exotic diseases and pests.

Animal materials imported for research purposes must be accompanied by import permits specifying the intended use. Such materials include organisms, vectors, cell cultures, animal tissues, antibodies, embryos, animal semen, and other genetic material.

Additional Information

VS will continue to protect American agriculture by actively working with producers, industry, and the general public to identify and prevent animal diseases. Veterinarians and livestock and poultry owners who suspect a foreign animal disease should immediately contact State or Federal animal health authorities.

For more information, contact
USDA, APHIS, Veterinary Services
Operational Support Staff
4700 River Road, Unit 33
Riverdale, MD 20737–1231
Telephone (301) 734–8093
Fax (301) 734–8818

Current information is also maintained on the Internet. Point your Web browser to http://www.aphis.usda.gov to reach the APHIS home page.

Appendix VIII: Reference Documents

Reference Documents

Animal Health Event Surveillance in Veterinary Services
"APHIS Safeguarding Review—An Industry Perspective," Kenneth E. Olson, Ph.D.
"Introduction to the USDA-APHIS VS Animal Safeguarding Review," APHIS
One Page Plan for More Integrated and Comprehensive Animal Health Surveillance
Safeguarding American Plant Resources
Strategic Plan, USDA, APHIS, VS, FY 2002 - FY 2004, APHIS (February 2001)
Summary of the 1998 Animal Health Monitoring and Surveillance Work Conference
The Role of Surveillance in National Animal Health Strategies
The Future of APHIS-Veterinary Services
United States National Animal Health Emergency Management System (NAHEMS) Strategic Plan for years 2000 through 2005

APHIS-VS Reports/Reviews

This list gives the Area (Veterinary Services Geographic Program Area such as AR =Arkansas), Center, Staff or Program Reviewed. A Station Review is a comprehensive review of all administrative and program activities within a designated unit. A Program Review is a review of a specific program within one or several designated units. Documents are available from APHIS-VS.

Area/Program Reviewed
Year Conducted Review Area/Subject(s)

Center for Veterinary Biologics (CVB)
FY 95 Veterinary Biologics Program Review
FY 98 Community Networking
FY 99 CVB Long-Range Planning and Strategic Development
Centers for Epidemiology and Animal Health (CEAH)
FY 00 Center for Animal Health Monitoring Review
FY 00 Wildlife Industry - Trends and Challenges for Animal Health Agencies
FY 98 Animal Health Monitoring and Surveillance Work Conference
National Center for Import and Export (NCIE)
FY 00 Regionalization Staff Review
Emergency Programs (EP)
FY 99 Standards for State Animal Health Emergency Management Systems
FY 97-99 Secretary's Advisory Committee on Foreign Animal and Poultry Diseases Recommendations
Quadrilateral Review of the U.S. Animal Health Emergency Management System
Plant Protection and Quarantine Port Reviews (PPQ)
FY 97-00 Numerous Port Reviews Which Contain VS Regulating Issues
National Veterinary Services Laboratory (NVSL)
Foreign Animal Disease Diagnostic Laboratory (FADDL)
FY 95 Peer Review of the TSE Program
FY 98 Peer Review of the Brucellosis Program
FY 98 Peer Review of the Avian Influenza Program
FY 98 Peer Review of NVSL, FADDL
FY 99 NVSL Program Activities Review
FY 00 Biosafety Audit of the Biological Materials Processing Section
Veterinary Services (VS) Wide
FY 98 National Slaughter Surveillance Review
FY 98 VSMT Strategic Planning Review on Flexibility to Address Changing Needs
FY 98 VSMT Strategic Planning Review on Public Affairs
FY 98 VSMT Strategic Planning Review on International Markets Initiative
FY 98 VSMT Strategic Planning Review on Revenue
VS, AHP, NCIE
FY 00 VS, AHP, NCIE, Regionalization Evaluation Services Staff Review

AR
FY 95 Brucellosis Program Review
FY 91 Stockyards Program Review FY 98 Station Program Review
AZ
FY 01 Station Program Review
IA
FY 96 Brucellosis Program Review
FY 91 Pseudorabies Program Review
FY 92 Pseudorabies Program Review
FY 93 Pseudorabies Program Review
FY 94 Pseudorabies Program Review
FY 95 Pseudorabies Program Review
FY 97 Pseudorabies Program Review
FY 99 Pseudorabies Program Review
FY 00 Pseudorabies Program Review
FY 97 Brucellosis Program Review
KS
FY 91 Brucellosis Program Review
FY 93 Brucellosis Program Review
FY 94 Brucellosis Program Review
FY 95 Brucellosis Program Review
FY 99 Brucellosis Program Review
FY 94 Station Review
FY 99 Tuberculosis Program Review
LA
FY 95 Brucellosis Program Review
FY 99 Brucellosis Program Review
FY 91 Station Review
FY 93 Station Program Review
FY 94 Station Program Review
FY 96 Station Program Review
FY 00 Station Program Review
MO
FY 91 Brucellosis Program Review
FY 95 Brucellosis Program Review
FY 96 Brucellosis Program Review
FY 98 Brucellosis Program Review
FY 99 Brucellosis Program Review
FY 00 Brucellosis Program Review
FY 01 Brucellosis Program Review
FY 93 Pseudorabies Program Review
FY 91 Station Review
FY 94 Station Review
MO
FY 01 Station Review
FY 93 Swine Brucellosis Program Review
NE
FY 91 Brucellosis Program Review
FY 97 Station Review
ND FY 92 Tuberculosis Program Review
NM FY 00 Station Review
OK
FY 99 Brucellosis Program Review
FY 92 Pseudorabies Program Review
FY 99 Pseudorabies Program Review
FY 91 Stockyards Review
FY 92 Swine Brucellosis Program Review
FY 99 Swine Brucellosis Program Review
FY 90 Tuberculosis Program Review
FY 91 Tuberculosis Program Review
FY 94 Tuberculosis Program Review - Arbuckle Wilderness
SD
FY 92 Brucellosis Program Review
FY 00 Brucellosis Program Review
Brucellosis Program Review
TX
FY 94 Brucellosis Program Review
FY 95 Brucellosis Laboratory Review
FY 99 Brucellosis Program Review
FY 00 Brucellosis Program Review
FY 95 Import-Export Program Review
FY 92 Stockyards Program Review
FY 92 Swine Health Protection Review
FY 91 Tick Management Control Review
FY 92 Tick Management Control Review
FY 98 Tick Management Control Review
FY 91 Tuberculosis Program Review
FY 94 Tuberculosis Program Review
FY 96 Tuberculosis Program Review
FY 00 Tuberculosis Program Review
FY 98 Import-Export User Fee Review
UT FY 01 Station Review
WY FY 01 Station Review
AK/HI/WAFY 99 Import/Export User Fee Review
FY 98 Administrative Review - WA
FY 98 Station Review - HI
FY 98 TB Accreditation Review - HI
FY 97 Workforce Utilization Review - WA
AZ
FY 01 Station Review
FY 96 Administrative Review
CA/NV
FY 00 Utilization Study at Port
FY 99 Fiscal Records Review
FY 99 Workforce Utilization Review
FY 98 Station Review (CA)
FY 98 Tuberculosis Program Review (CA)
FY 96 Brucellosis Program Review (CA)
CO
FY 00 Colorado Lab Review
FY 00 Workforce Utilization Review
FY 95 Station Review
ID
FY 99 Workforce Utilization Review
FY 98 Station Review
FY 97 Brucellosis Program Review
FY 98 Brucellosis Program Review
MT
FY 99 Workforce Utilization Review and Administration Area Review
NE
FY 97 Station Review
NM
FY 00 Station Review
FY 00 Tuberculosis Program Review
FY 99 Administrative Area Review
FY 95 Station Review
OR
FY 97 Station Review

FY 96 Brucellosis Program
FY 97 Swine Health Program Protection
FY 97 Station Review of Miami Animal Import Center (MIAC)
FY 97 Procurement Management Review of Southeast Regional Office
FY 98 Brucellosis Program Review
FY 98 Station Review of HS Truman Animal Import Center (Key West)
FY 99 Station Review of Miami Animal Import Center
FY 00 Brucellosis Program Review
FY 00 Customer Service Review of MAIC
FY 00 Station Review of MAIC
GA
FY 00 Station Review
IL
FY 97 User Fee Review
FY 99 TSE Program Review
FY 00 Customer Service
IN
FY 96 Station Review
KS
FY 95 Brucellosis Program review
KY
FY 96 MCI/MSI Review
FY 96 Brucellosis Program Review
MI
FY 95 Administrative Review
FY 98 Tuberculosis Program Review
FY 00 Tuberculosis Program Review
FY 00 Administrative Review
FY 00 M.Bovis in White-tailed deer
FY 00 Customer Service Review at Port Huron
FY 00 Customer Service Review at Detroit
MN
FY 95 Administrative Review
FY 97 Station Review
FY 99 Station Review
MS
FY 97 Brucellosis Program Review
FY 98 Station Review
NJ
FY 96 Administrative Review
NC
FY 00 Station Review
PA
FY 98 Station Review
FY 98 Administrative/User Fee
FY 00 Administrative Review
PR
FY 97 Tuberculosis Program Review
FY 97 Needs Assessment
FY 99 Tuberculosis Program Review
FY 00 Station Review
SC
FY 99 Station Review
TN
FY 96 Station Review
FY 96 Brucellosis Program review
FY 98 Station Review
VI
FY 96 Needs Assessment
WI
FY 99 Station Review

Appendix IX: Stakeholders Survey

Safeguarding Review of USDA: Veterinary Services
Stake-holder's Survey
National Association of State Departments of Agriculture
1156 15th Street NW, Washington, D.C., 20005

For each question that follows, please circle one answer (unless otherwise specified) that best represents your experiences and opinions. If you feel you cannot answer a question, please check the "Don't Know" box for that question. This survey is due May 15, 2001.

1. How would you rate the threat of the introduction of a foreign animal disease into the US?

1	2	3	4	5	
Decreasing				Increasing	Don't Know

2. How vulnerable do you think the US is to the introduction of a foreign animal disease?

1	2	3	4	5	
Not at all Vulnerable				Extremely Vulnerable	Don't Know

3. Please rate the level of risk for the introduction of a foreign animal disease into the US from each of the following:

Sources	Very low risk	Low risk	Moderate risk	High risk	Very high risk	Don't Know
a) Livestock Imports	1	2	3	4	5	
b) Poultry Imports	1	2	3	4	5	
c) Equine Imports	1	2	3	4	5	
d) Pet Imports (dog/cat)	1	2	3	4	5	
e) Exotic Bird Imports	1	2	3	4	5	
f) Animal Product Imports (meat etc.)	1	2	3	4	5	
g) Animal By-product Imports (serum, vaccines etc..)	1	2	3	4	5	
h) Human Travel	1	2	3	4	5	
i) Fomite Imports (machinery etc..)	1	2	3	4	5	

4. How important is an accurate and reliable identification system for the post entry tracking of imported animals?

1	2	3	4	5	
Not at all Important				Extremely Important	Don't Know

5. How satisfied are you with the customer service provided by the USDA:APHIS:Veterinary Services?

1	2	3	4	5	
Not at all Satisfied				Extremely Satisfied	Don't Know

6. Rate the importance and effectiveness of the following in preventing the introduction of foreign animal disease in the US.

	Not Important				Very Important	Not Effective				Very Effective	Don't Know
a) Import permit review and processing	1	2	3	4	5	1	2	3	4	5	
b) Port inspections/quarantines	1	2	3	4	5	1	2	3	4	5	
c) Interception of prohibited products	1	2	3	4	5	1	2	3	4	5	
d) Knowledge of animal disease status in other countries	1	2	3	4	5	1	2	3	4	5	
e) Performance of risk assessments	1	2	3	4	5	1	2	3	4	5	
f) Foreign animal disease suspect field investigations	1	2	3	4	5	1	2	3	4	5	

7. How successful do you think the USDA:APHIS:Veterinary Services' has been in excluding foreign animal diseases from the US?

1	2	3	4	5	
Not at all Successful				Extremely Successful	Don't Know

8. What additional concerns do you have about USDA:APHIS:VS' efforts to exclude foreign animal diseases from the US?

9. Which of the following commodities do you represent? (Circle all that apply)

1 = beef
2 = pork
3 = equine
4 = poultry
5 = sheep/goat
6 = companion animal
7 = other (specify)_____

Would you be willing to participate in a follow-up telephone interview?

1 = yes
2 = no

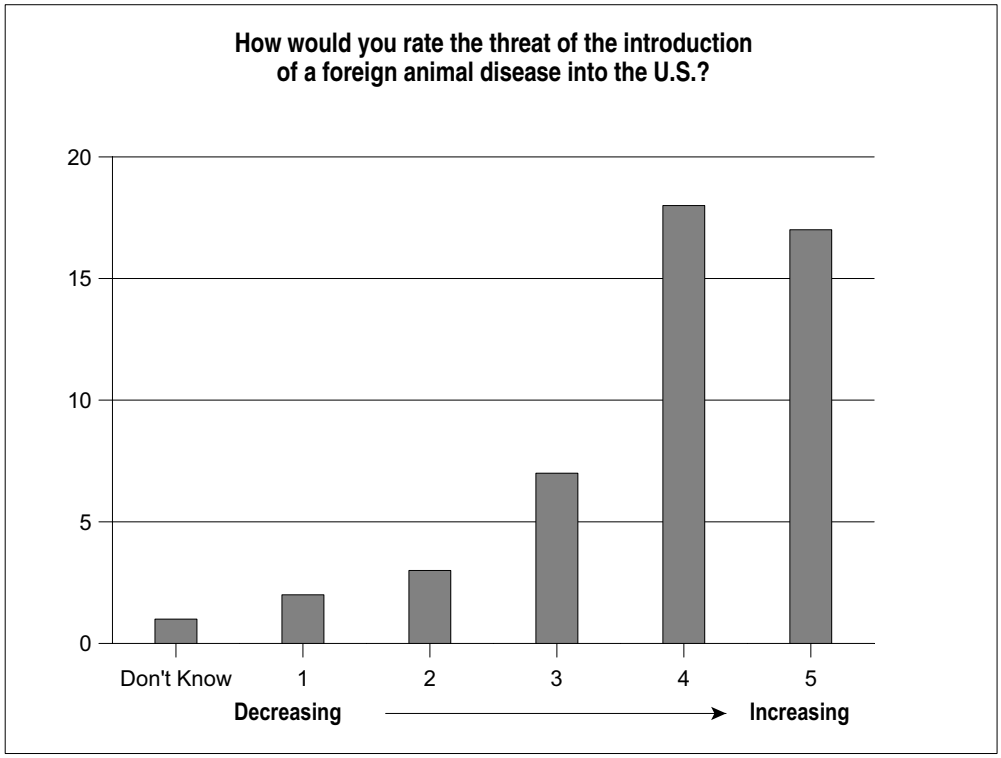
Organization Name: _____
Contact Name: _____
Area Code and Phone Number: _____

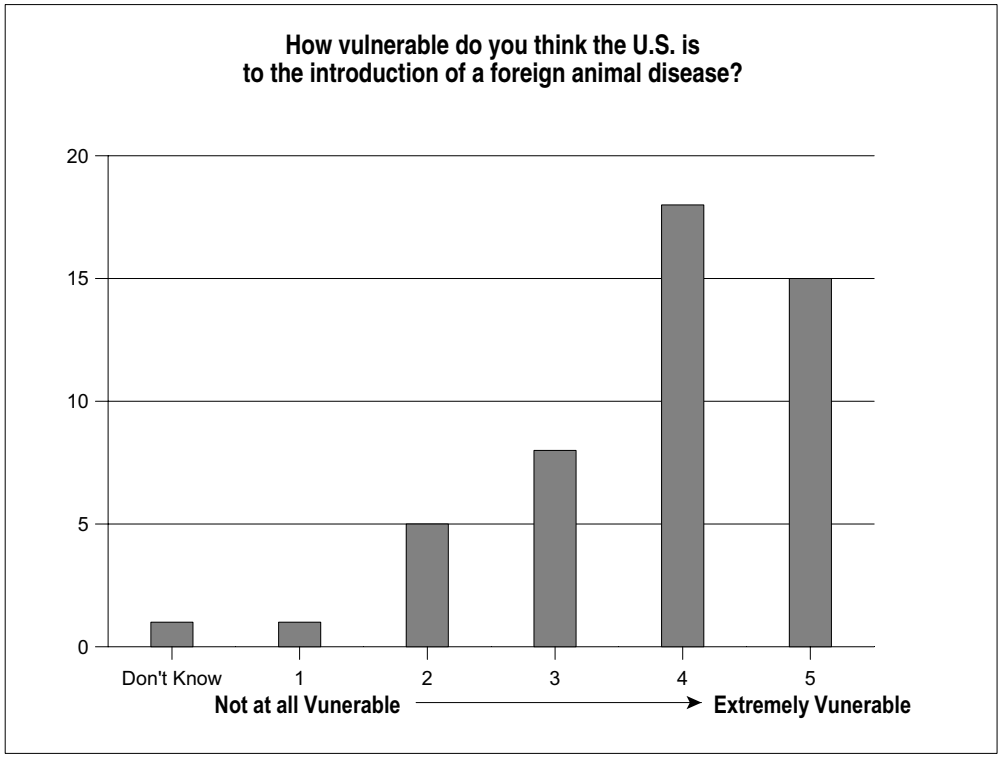
Send completed survey to:

Patrick Atagi/Animal
Safeguarding Review
c/o NASDA
1156 15th Street, N.W.
Suite 1020
Washington, D.C. 20005

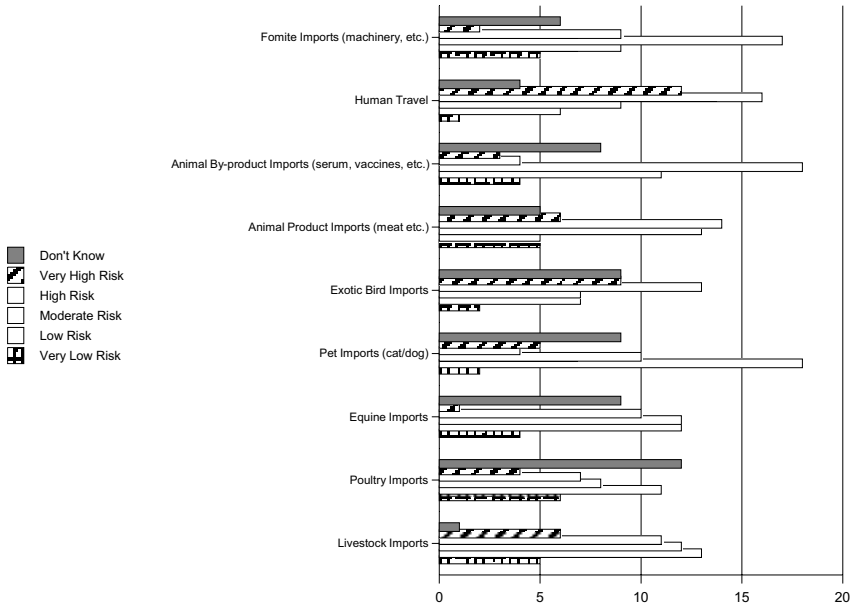
Appendix X: Stakeholders Survey Results

Industry Groups

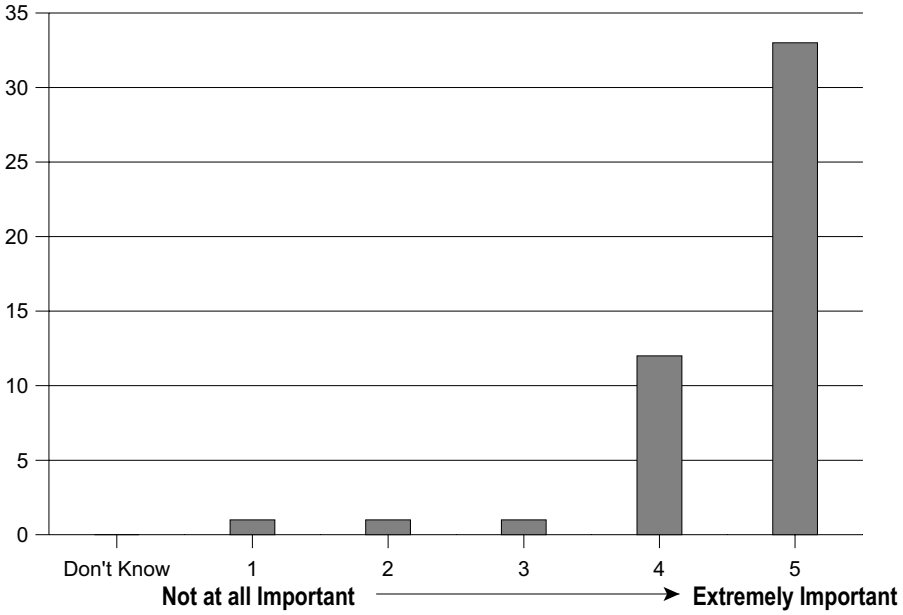




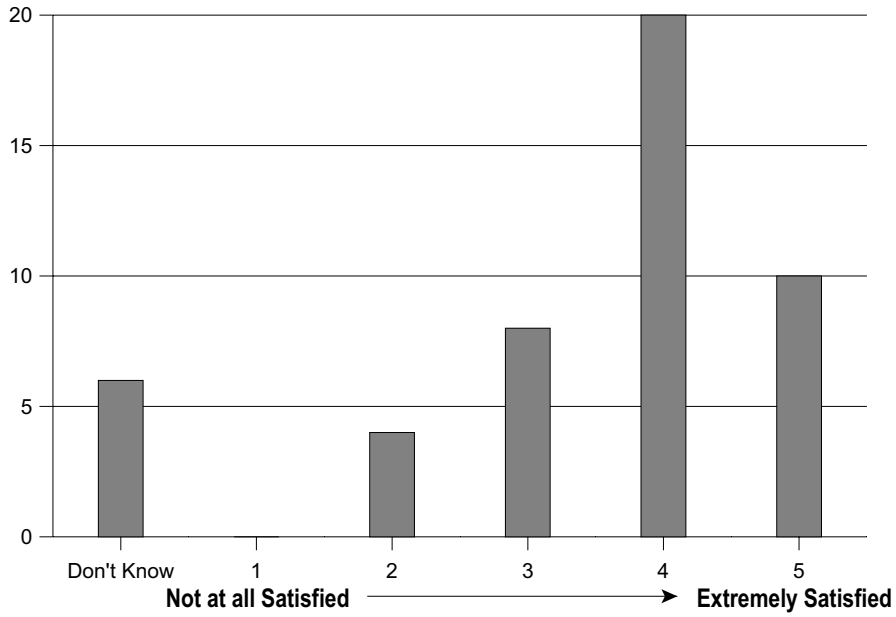
Please rate the level of risk for the introduction of a foreign animal disease into the U.S. from each of the following sources.



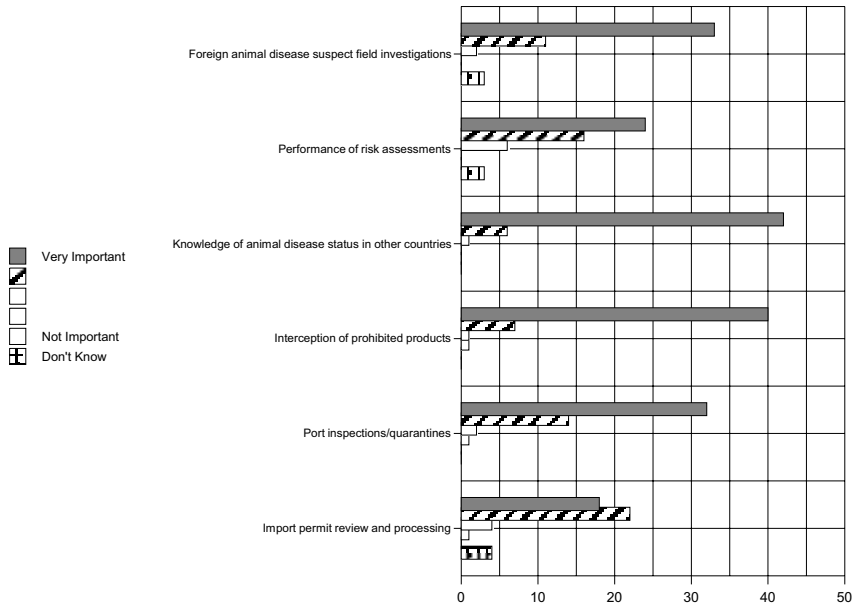
How important is an accurate and reliable identification system for the post entry tracking of imported animals?



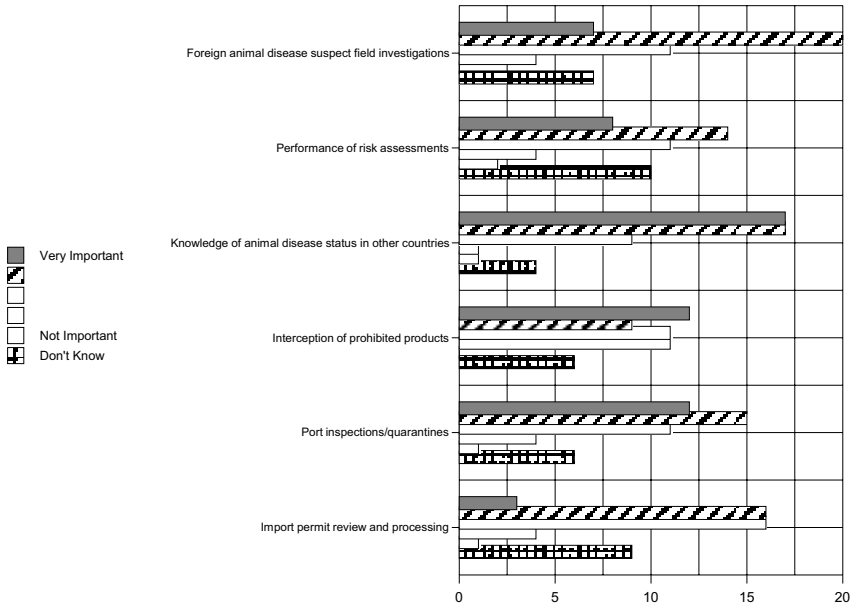
How satisfied are you with the customer service provided by the APHIS-VS?



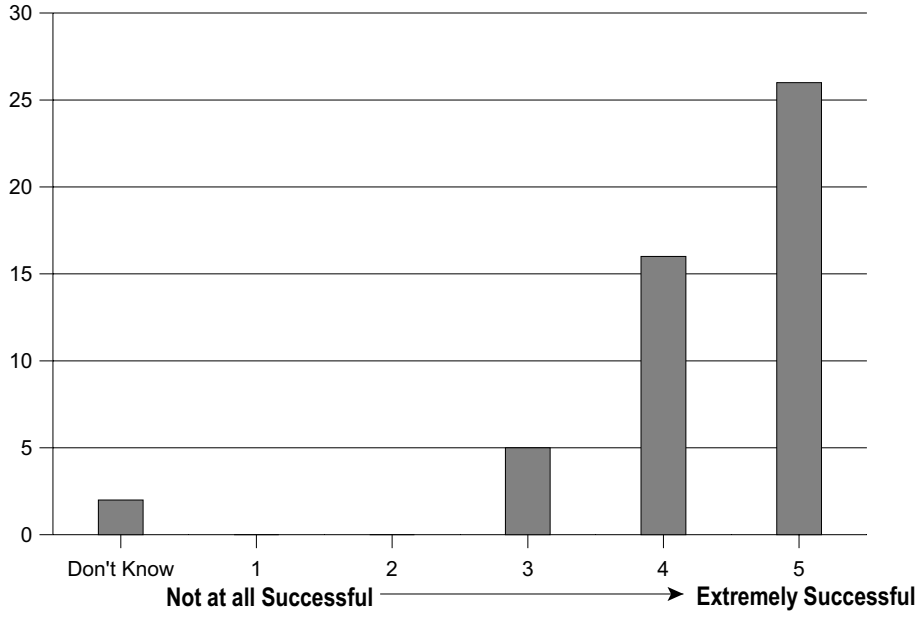
Rate the importance of the following in preventing the introduction of foreign animal disease in the U.S.

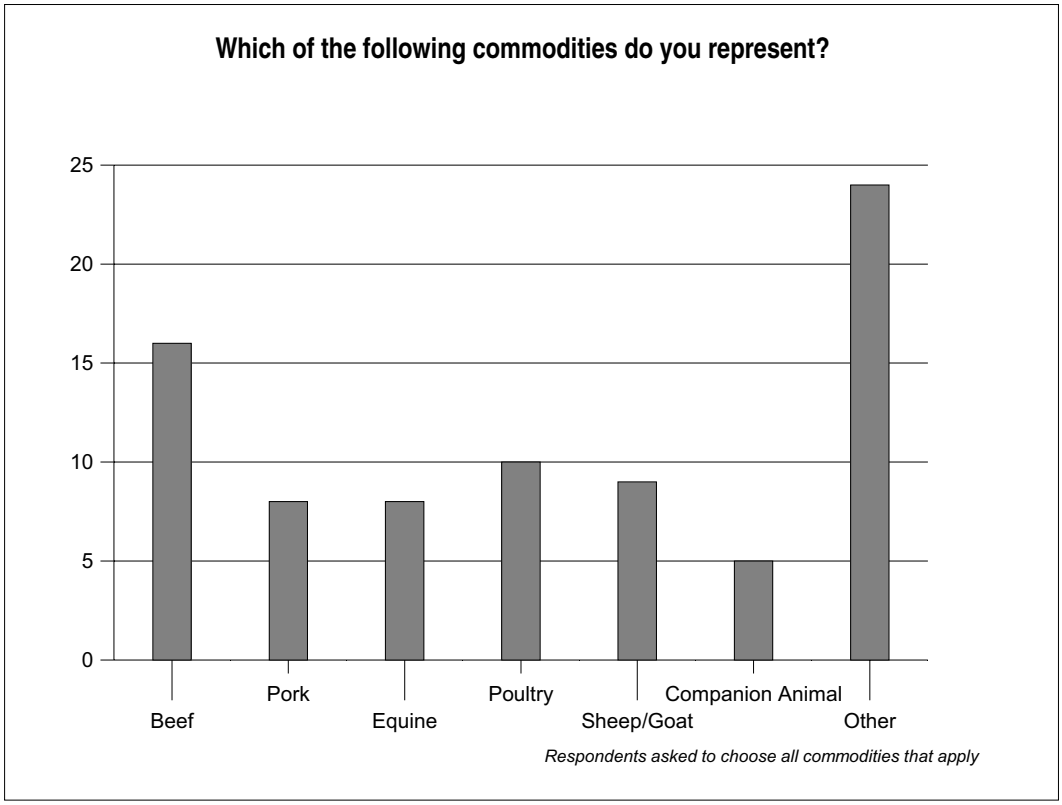


Rate the effectiveness of the following in preventing the introduction of foreign animal disease in the U.S.



How successful do you think APHIS-VS has been in excluding foreign animal diseases from the U.S.?





What additional concerns do you have about APHIS-VS' efforts to exclude foreign animal diseases from the U.S.?

Planning/Coordination involving other agencies and industry. Inadequate budget/funds allocated to exclusion/prevention. Increasing risks vs. decreasing budgetary appropriations.

Terrorist groups.

Need to improve communication with practicing veterinarians and provide more education and training!

They are not fool-proof or 100% comprehensive. Pressure/backlash from affected parties (EU) to lift ban.

Diminishing resources, aging work force, and poor facilities. Need to develop human resources for diagnostic ability and leadership.

Lack of personnel plus lack of examinations.

Communication and exchange of information between USDA and other government agencies.

I am concerned about "bio-terrorism" where someone from PETA or similar groups purposely bring a FAD into the U.S.

Need to check on fresh cuts of cattle.

Bioterrorism.

Illegally smuggled animals/products, particularly from the south, poses a major risk.

Threat of bioterrorism.

Main concern is still the fact that it is legal to feed pigs with feed waste (although heat treated).

Making Customs aware of the danger people pose and getting stricter management procedures.

More awareness of bioterrorism; cooperation of related agencies.

Extremely understaffed for the level of work required.

There are less FADDs now than ever, with other duties that have required them to be out of state. We have had as few as two FADDs in the state on some days. This program needs to be expanded. Also of concern is the amount of lab samples that can be processed in one day at Plum Island and Ames. Both systems could easily be overwhelmed during an outbreak. Don't need to quit, too soon. Need to maintain a long range program instead of responding to evening news.

Resources for APHIS are inadequate.

I believe the agencies have done what is within their power and resources to prevent foreign diseases from entering the U.S. Problems have yet to arise and I think that means that you are being successful in your programs.

EU contacts (i.e., enforcement).

Making certain they have resources and dollars to do the job.

Personal travel, international airports.

Extremely important to protect "agricultural borders," i.e., allow NO imports of even remotely possibly exposed animals, people or equipment. Also, prohibit any animal protein, etc., in any livestock feedstuffs.

Only limited knowledge about aquaculture, its needs and limitations.

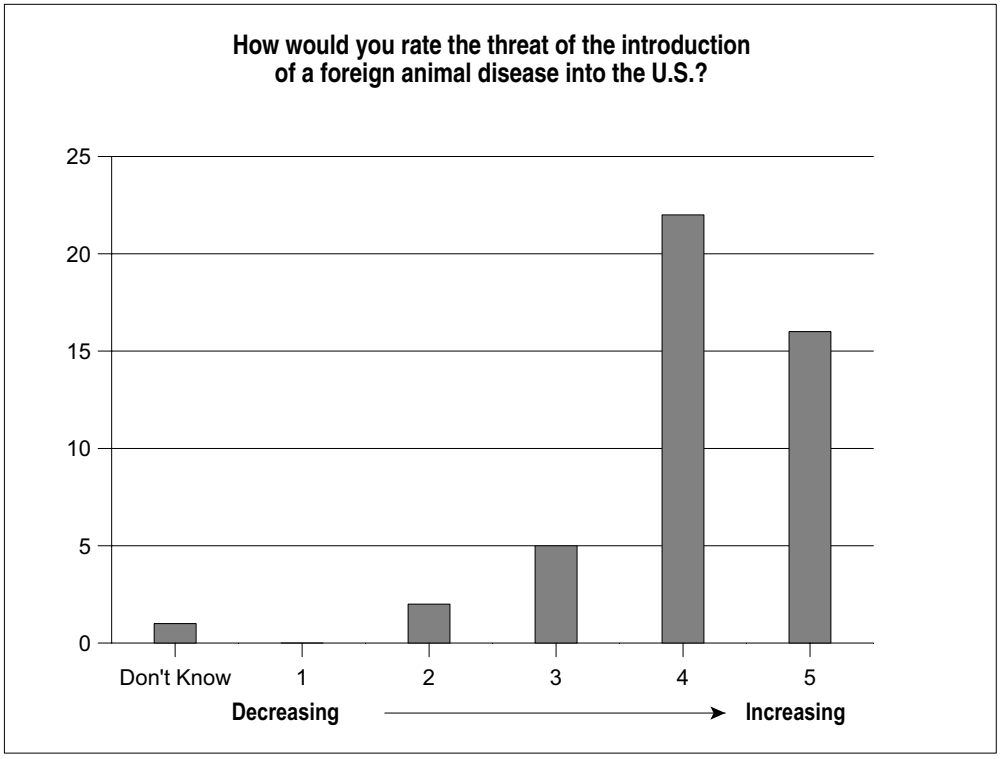
Not enough resources to do the job. The mission of the agency has changed to one that is designed to promote trade.

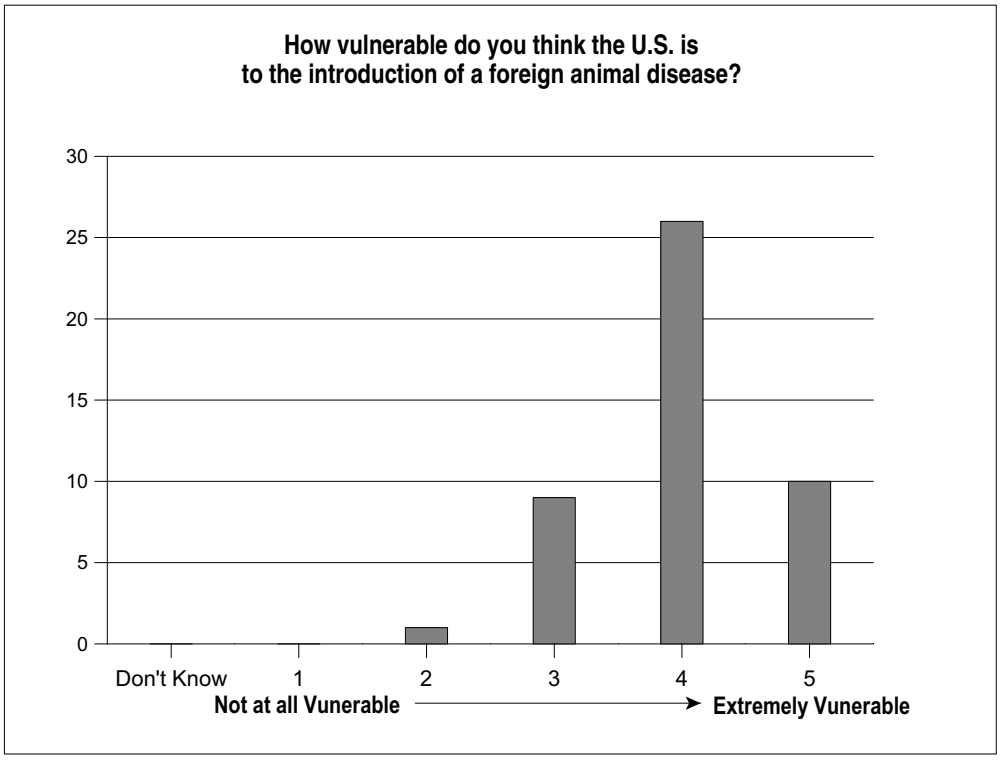
I would like to make some additional comments that may prove useful to the Safeguarding Review team. First, recall that our interest in this process stems from the fact that our members import and transport bird specimens and bird tissues, and use those tissues in research conducted in laboratories. They have faced a fairly substantial, vague, and ever-changing array of USDA policies and procedures designed to exclude Exotic Newcastle Disease. However, to the best of our knowledge, no one has ever determined that the material imported by ornithologists carries live END virus. In a June 12 letter, Karen James-Preston, the Assistant Director for Technical Trade Services of the APHIS/Veterinary Services' National Center for Import and Export, stated that "there have been cases of END reports that have been traced back to smuggled birds, but none have been reported from improperly handled bird material." What we hope to accomplish, by participating in the NASDA safeguarding review, is to see a set of recommendations from NASDA to the USDA for safeguarding procedures of the import and transport of bird specimens and tissues for scientific research that are commensurate with the level of risk posed by these activities. This would include formal recognition of methods considered effective to kill the virus.

To that end, we have circulated the enclosed questionnaire to ornithologists around the country. We should have the responses analyzed shortly and will then provide them to you. We think it is likely that the responses will demonstrate that these activities carry minimal (or no) risk of END exposure to poultry flocks in the United States.

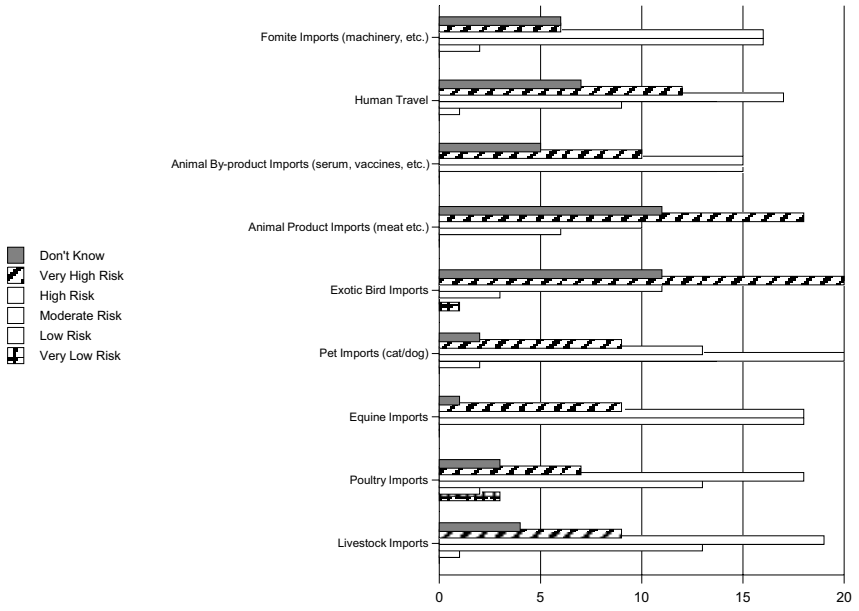
I would also like to explain our answer to question #5: the lack of satisfaction with APHIS-VS stems from the fact that the policies and procedures are so uncertain and shift regularly, without any apparent scientific basis. In most cases, scientists learn about these changes from their field inspectors when the inspectors arrive to conduct inspections for permit renewals. The polices are generally not regulatory in nature, and are not readily accessible to the regulated community (e.g., published on the VS website). In response to my request for copies of source documents, I received materials dated in 1976 and 1982. That being said, though, we are extremely grateful to Dr. James-Preston, and her staff for providing comprehensive answers to our many questions despite the pressing demands of current animal health crises and the increased pressure for surveillance and exclusion.

Obviously, we support the USDA's efforts to protect the U.S. poultry industry and the growing pet bird breeding industry from END. However, we believe that those efforts have resulted in policies and procedures that are burdensome and unwarranted in the case of import of bird tissue for scientific research. We hope that NASDA will take into account when making its recommendations to the USDA and the Congress.

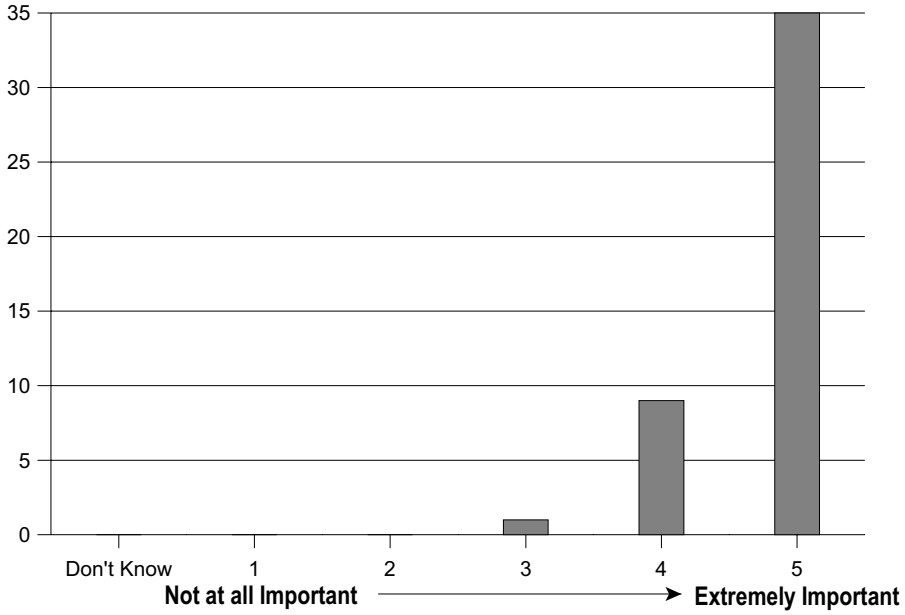

How would you rate the threat of the introduction of a foreign animal disease into the U.S.?
25
20
15
10
5
0
Don't Know
1
2
3
4
5
Decreasing
Increasing


How vulnerable do you think the U.S. is to the introduction of a foreign animal disease?
30
25
20
15
10
5
0
Don't Know
1
2
3
4
5
Not at all Vunerable
Extremely Vunerable

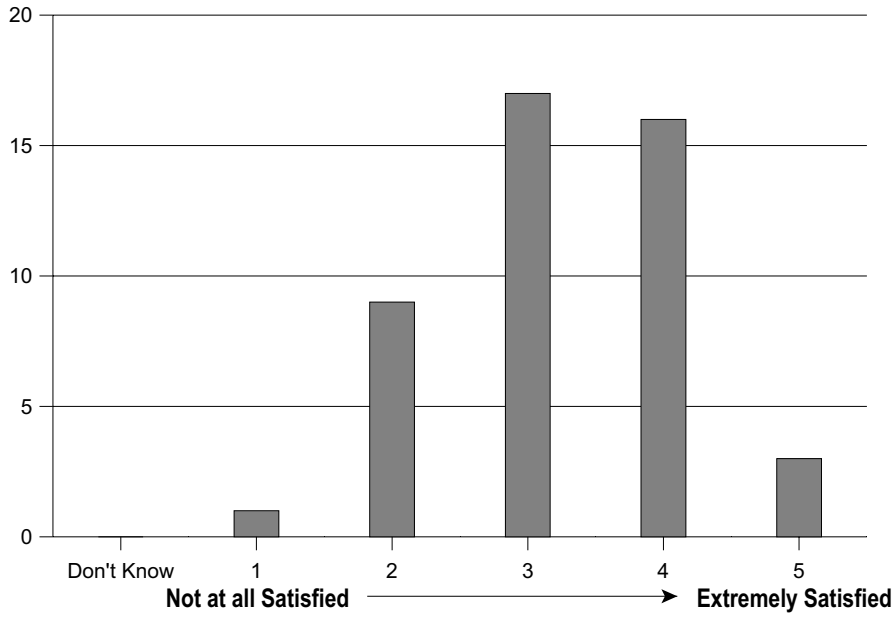
Please rate the level of risk for the introduction of a foreign animal disease into the U.S. from each of the following sources.



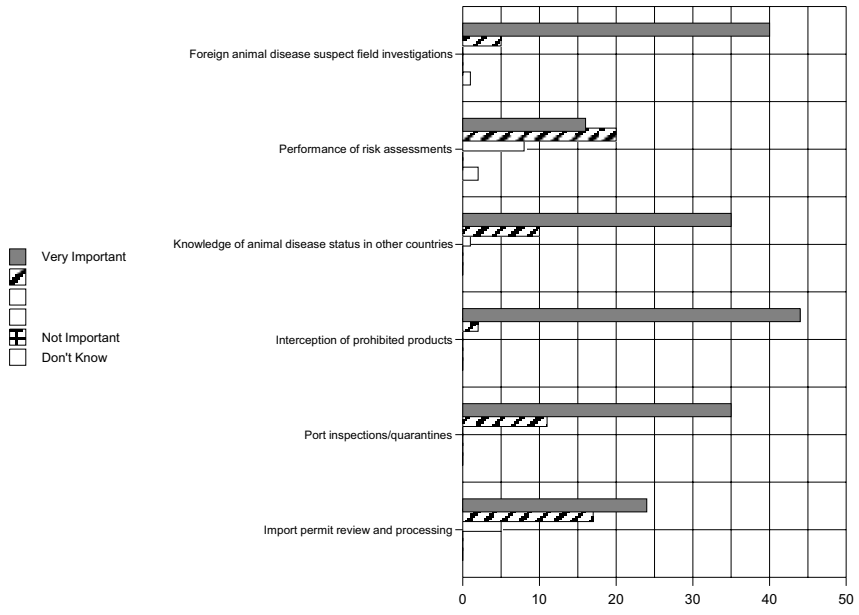
How important is an accurate and reliable identification system for the post entry tracking of imported animals?



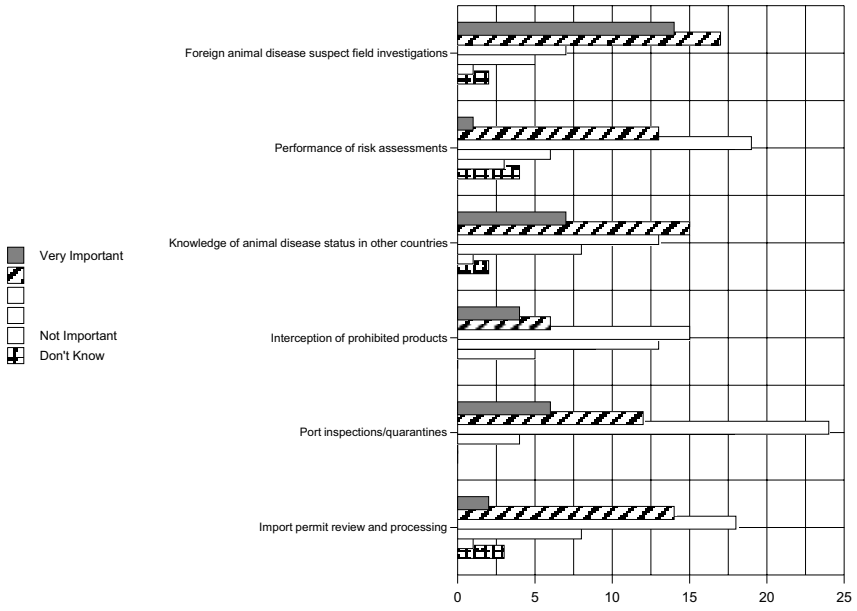
How satisfied are you with the customer service provided by the APHIS-VS?



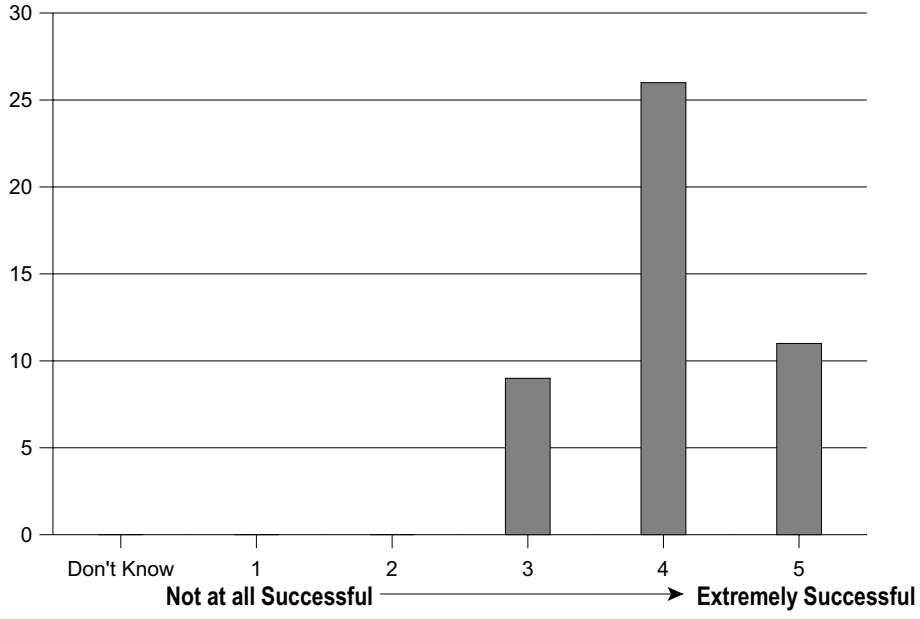
Rate the importance of the following in preventing the introduction of foreign animal disease in the U.S.

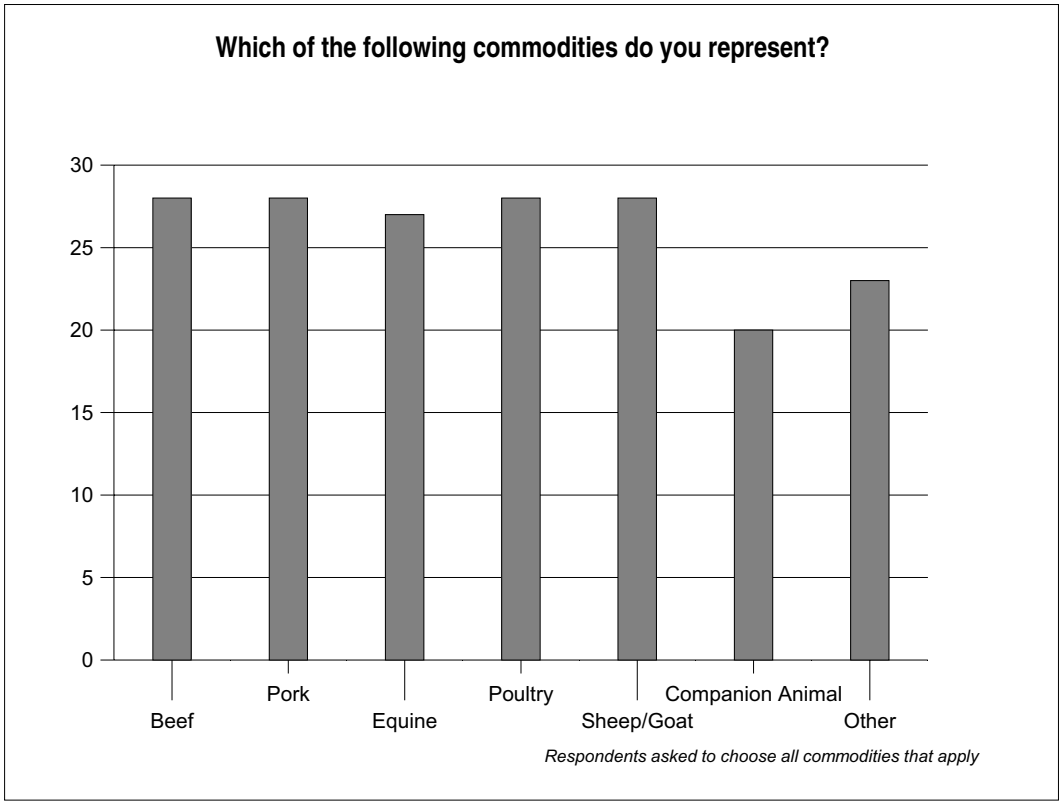


Rate the effectiveness of the following in preventing the introduction of foreign animal disease in the U.S.



How successful do you think APHIS-VS has been in excluding foreign animal diseases from the U.S.?





What additional concerns do you have about APHIS-VS' efforts to exclude foreign animal diseases from the U.S.?

Shrinking number of staff: diagnostic laboratories in Ames, Iowa, and Plum Island, New York, are understaffed. Diagnostic technologies are not adequate for today's needs.

With regard to question #3, the significant risks are, in my opinion, more related to what is not regulated than what is regulated, namely, illegal immigration and the growing business of smuggling wild animals for the exotic and trophy trade.

Insufficient funds and personnel.

Finding and personnel.

Laboratory facilities.

Need to allow other certified laboratories to do preliminary tests, plus aid in diagnosis and emergency management.

Lack of funding reflected by decreased levels of field staff, diminished diagnostic laboratory capability at NVSL and FADDL. Levels of expertise in senior staff level positions at APHIS.

Need to increase people at input locations.

APHIS should notify states of animals imported and destined to that state.

The issue of only looking at an exporting country's disease status on diseases that USDA has an eradication/control program. There are many diseases or sub-type of diseases that either are not present (trypanasomicis) or a sub-type of domestic diseases which we have no vaccines for (strains of BUD). These diseases, which potentially could destroy our livestock, should be part of any risk assessment.

To have sufficient financial resources to heighten all exclusion procedures i.e., personnel and equipment.

Preparedness and protocols are weak.

Vaccine supplies are limited.

Diagnostic support needs funding for facilities.

The agency is severely understaffed.

The facilities at NVSL and Plum Island are old, outdated and inefficient.

Test results are too slow in turnaround time.

Lack of enforcement at live animal import stations; i.e., screwworm, ticks.

Lack of enforcement of pre-import testing; i.e., CEM.

Lack of enforcement program for exotic imports; i.e., turtles, rhinos, exotic pets, minor species.

I do not believe they have enough personnel.

Lack of multi-organizational approach-Need for an incident command structure with training developed and certification of players involved.

Need better collaboration between FSIS and APHIS-VS concerning BSE surveillance efforts. More trained dogs to detect illegal items not on manifest (i.e., Memphis, the #1 cargo airport is without a dog). We are having increasing inquires in regards to Memphis imports of live animals and hatching eggs. Memphis is not approved or set up to handle such!

Concern for trade is far outstripping concern for disease prevention. Priorities need to be carefully examined.

Strict inspection and enforcement of garbage feeding regulations.

Understaffed, underfunded, undertrained, very slow to make changes, even when need is acute. In past have not cooperated, communicated effectively with sister federal agencies, states, stake holders.

More resources (!!) for surveillance-increase their interdiction efforts. More inspectors at ports of entry; more dog inspection USDA/APHIS.

The shortage of resources to do the job. Hard to determine how much of APHIS-VS efforts were successful and how much was luck.

Total reliance on PPQ for animals (animal products). Need much better coordination with Customs to stop fraudulent manifests-illegal importation of animal products.

1. Difficult to monitor human travel.
2. Bioterrorism.
3. Illegal imports-smuggling exotic species.

No attention is given to shoring up out animal health infrastructure through mandatory animal ID systems and interstate movement regulations.

Risk Assessment must:
1. Receive adequate funding.
2. Receive high priority personnel with on-site visits by expert teams.
3. Included input stats and industry.

Customs has a very “lax” attitude in dealing with foreign travelers.

1. Prevention effort poor at tradition at ports of entry.
2. Vehicle and people traffic from Mexico.
3. Extremely weak surveillance at ports (cargo boxes), research labs, meat importers, U.S. Postal Service, UPS, FedEx, etc.
4. Tracing system of fresh and frozen meat products en route or in USA at the time of FAD diagnosis in country of origin.

To date, the APHIS-VS Program has been very successful in keeping FAD out of the U.S. Currently, this agency is short staffed and can not maintain adequate personnel of required surveillance.

Not enough people on hand to do all that needs to be done-spread very thin, not as it should be-missing too many possibilities. Largest concern is packages of product mailed.

Concerned about USDA's ability to measure risk on an ongoing basis or timely basis and then obtain and mobilize needed resources to address increases in risk. Concern cited in response question #6. [However, many of the excellence/prevention activities are not under the control of APHIS-VS and I am not certain they have adequate input into the operations of other organizations that have direct exclusion/prevention roles (i.e., PPQ, Customs, Immigration)].

Decreased work force to handle increased work load. Decreased budgets. Complacency within agency, industry, and producers. Lack of knowledge and education among non-agriculture public.

Appendix XI: How This Report Was Created

In November 2000, APHIS established a cooperative agreement with NASDA Research Foundation (NASDARF) to coordinate an assessment of the capabilities of U.S. and state governments, foreign governments, and the livestock industry itself to protect U.S. livestock and human health from animal diseases. The audit focuses on the performance of APHIS itself.

The report's authors include state veterinarians, university and private animal health specialists, former APHIS associates, and experts from state agriculture departments and the livestock industry. These individuals were selected by NASDARF and grouped into four committees:

- Domestic Detection & Surveillance
- Exclusion
- International Information
- Response

Over the course of eight months, committee members traveled to U.S. program sites, met with participants in animal disease control programs, and drafted findings and recommendations, which were later endorsed in a survey of stakeholders and state departments of agriculture personnel.