

REPORT OF THE USAHA/AAVLD COMMITTEE ON ANIMAL EMERGENCY MANAGEMENT

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The Committee met on Saturday, October 20, 2012, at the Greensboro Sheraton Hotel, Greensboro, North Carolina, from 8:00 a.m. to 2:15 p.m. There were 70 members and 77 guests present. At the beginning of the meeting, it was announced that Dr. Marilyn Simunich had completed five years of Co-Chair service and a search is on-going for an AAVLD member to take the Co-Chair position. Members were asked to review the mission statement printed on the agenda. Responses to 2011 resolutions were reviewed. Thirteen presentations were heard, one of which was a time-specific paper.

Time Specific Paper

Dr. Darrell Trampel - Professor, Veterinary Diagnostic & Production Animal Medicine, Iowa State University presented a time-specific paper on the Secure Turkey Supply Plan: Preparations for an Outbreak of Highly Pathogenic Avian Influenza. The paper, in its entirety, is included at the end of this report.

Presentations

USDA-APHIS-VS Emergency Management and Diagnostics Programs Update

Jon Zack

USDA-APHIS, Veterinary Services (VS), National Center for Animal Health Emergency Management (NCAHEM)

This presentation will provide the member of the Committee on Animal Health Emergency Management (CAEM) with an update on the activities of the Emergency Management and Diagnostics unit during fiscal year 2012. These activities include the release of many new and revised Foreign Animal Disease Preparedness and Response Plan (FAD PRoP) documents; in particular, two new APHIS Foreign Animal Disease Frameworks; a revised version of the foot-and-mouth disease (FMD) Red Book; and the release of easy to read, accessible, and succinct ready reference guides that responders could quickly review. These ready reference guides cover topics ranging from the FMD Response Plan to FMD Vaccination Strategies and Movement Control. Further, in FY2012 the National Veterinary Stockpile (NVS) published its Logistics Catalog in order to provide details of NVS countermeasures to State and Tribal NVS planners on the NVS restricted website. The NVS also continues to reach out to stakeholders to assist with logistics readiness and response capabilities. In September 2012, the NVS partnered with the State of Colorado and tribal officials from the Southern Ute and the Ute Mountain Ute Tribe to conduct a full-scale logistics exercise in Brighton, CO. The exercise focused on the *Colorado National Veterinary Stockpile and Agricultural Logistics Plan* which includes logistics processes

for the Southern Ute Indian Tribe and the Ute Mountain Ute Tribe within Colorado. The exercise provided a venue for the State of Colorado and tribal leaders to collaborate on emergency response requirements.

With the ongoing Veterinary Services reorganization, the Emergency Management functions currently under the responsibility of Emergency Management & Diagnostics (EM&D) will be integrated into the Surveillance, Preparedness, and Response (SPR) unit while the Diagnostics functions will be integrated into the Science, Technology, and Analysis (STA) unit. SPR will provide planning, policy, program, regulatory oversight and implementation for VS surveillance, preparedness, and response activities in an integrated structure focused on safeguarding US animal health. SPR's mission responsibilities will include management of the National Veterinary Stockpile, the interagency coordination and outreach activities, actions related to US animal traceability, the coordination and integration of One Health activities, and the activities of the VS Chief Epidemiologist.

Trends in Animal Health Emergency Response Decon and Disposal

Lori Miller

Department of Homeland Security, Science and Technology Directorate

Ms. Miller spoke of lessons learned from the Wide Area Resiliency and Recovery Program (WARRP) Agriculture Workshop held in July in Denver which focused on using the APHIS disposal Matrix, Decision Tree, and Checklist tools. The workshop involved providing the participants with a scenario then teaching them how to use the tools to figure out how to dispose of 20,000 head of cattle, with surprising results. In addition, she provided a brief summary of lessons learned from a cross-border tabletop workshop held in May in Detroit as part of the Fourth International Carcass Disposal symposium. That workshop focused on movement control, depopulation, disposal, and decontamination in case of a cross-border FMD outbreak between Ontario and Michigan. Critical gaps that were identified were presented.

Outcome of Radiological Events in Japan and USA Preparedness

Gordon Cleveland

USDA-APHIS- Veterinary Service (VS), National Center for Animal Health Emergency Management (NCAHEM)

Mr. Cleveland's presentation provide information on USDA's responsibilities during a radiological emergency and how development of the Radiological Program Analyst position at the VS' National Center for Animal Health Emergency Management has helped identify challenges to our response capabilities and develop programs to address those challenges. There will also be a brief discussion of radiological emergency preparedness in the US animal sector in general, contrasted with the events that unfolded during the Fukushima nuclear power plant disaster.

Foresight for Canadian Animal Health (Fore-CAN)

Shane Renwick

Director, Animal Health Science Foresight Canadian Food Inspection Agency

Fore-CAN is a national foresight initiative has produced new tools to help the animal health community in Canada better prepare for future animal disease threats.

Canada is currently free of major transmissible animal diseases that fall under the mandate of the Canadian Food Inspection Agency, including foot-and-mouth disease (FMD) and serious strains of avian influenza. However, there is a critical need for all stakeholders in the animal health community to remain vigilant since such disease outbreaks can cause debilitating sickness in livestock, halt trade in animals and animal products, and threaten the food supply, public health and the livelihoods of farmers.

We need to look back only a few years to remind us why we must remain on guard. For example, the outbreak of FMD in Britain in 2001 caused more than \$16 billion (CDN) in damage, with millions of animals slaughtered to prevent the virus from spreading; disruption of the food supply, trade and tourism; and severe psychological trauma and loss of livelihood to thousands of people. The outbreak of bovine spongiform encephalopathy in Canada in 2003 has cost the Canadian economy at least \$5 billion (CDN). Impacts are still being felt throughout the animal industry nearly ten years later. The 2004 outbreak of highly pathogenic avian influenza in the province of British Columbia, originating from wild birds, caused \$300 million (CDN) in damage to the poultry industry before it was finally eradicated, fortunately without serious human illness or loss of life.

Complacency is Not an Option

Animal diseases do not respect international borders and may appear without warning. Canada cannot be complacent. In today's highly interconnected world, disease-causing agents could enter Canada in a number of ways. Outbreaks might result from natural incursions such as through wildlife or insect movement, or they could occur inadvertently if the virus is carried on contaminated imported products or on international travellers.

Faced with these challenges, the Canadian Food Inspection Agency (CFIA) took the lead in 2008 in developing Foresight for Canadian Animal Health (Fore-CAN), an innovative, three-year (2008-2011) multi-partner initiative that applied foresight methods to support new ways of thinking about the animal health emergency management (AHM) system. Fore-CAN was launched in response to concerns from the animal health and welfare community that failure to

anticipate and prepare for future challenges arising from new, existing or as yet unknown disease threats to healthy animal populations could lead to catastrophic consequences for the health of Canadians and Canada's economy.

Fore-CAN was funded by the Centre for Security Science, National Defence Canada¹ and in-kind contributions of partner organizations, including Agriculture and Agri-Food Canada; Alberta Agriculture and Rural Development; Dairy Farmers of Canada; Health Canada; Ontario Ministry of Agriculture, Food and Rural Affairs; Public Health Agency of Canada, and Canada's five veterinary colleges. In all there were over 300 participants from the diverse animal health community, including governments, farmers, producers, food processors, aboriginal representatives, wildlife disease experts, veterinarians, scientists, and consumers and governmental and non-governmental organizations in Canada and abroad.^{2,3}

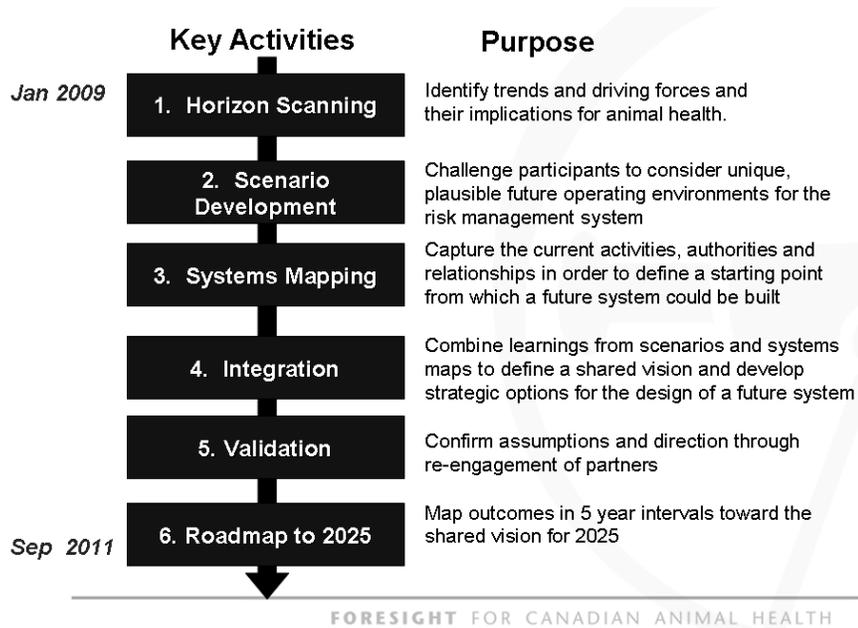
Fore-CAN's three objectives were aimed at involving the animal health community in:

1. learning about and using foresight methods to gain insights into future threats and opportunities;
2. applying the resulting insights to guide planning and investments in AHRM capabilities; and,
3. sharing and transferring knowledge gained in order to enhance the AHEM system in Canada.

In a series of foresight activities, participants explored the following focal question: How can Canada build a more effective and robust animal health emergency system for 2025 and beyond?

Participants followed a stepwise process (Figure 1) that included six foresight activities designed to encourage new ways of thinking and to build trust and understanding:

Figure 1. Foresight for Canadian Animal Health (Fore-CAN) activities and timeline

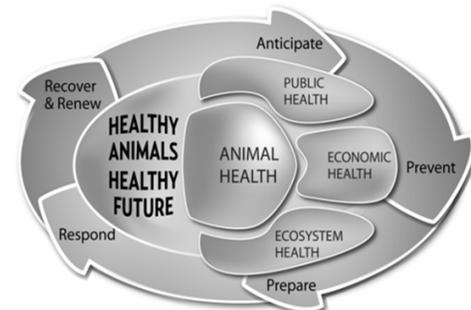


Shared Vision, Shared Responsibility

The convergence of perspectives that emerged from these activities enabled the participants to develop a shared vision for the AHEM system of the future, titled "Healthy Animals, Healthy Future 2025" (Figure 2)

Figure 2. Shared Vision: Healthy Animals, Healthy Future 2025

Health will be
 as a key
 and
 of Canada's
 economic
 prosperity.



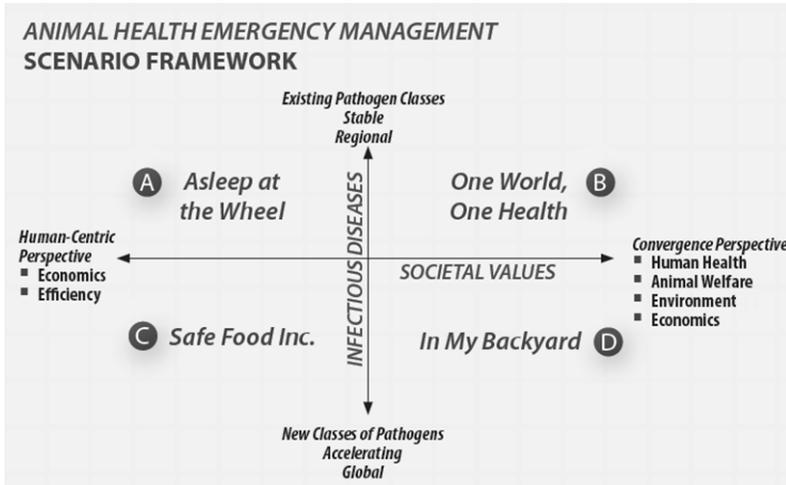
The shared vision reflects participants' acceptance of, and appreciation for, shared responsibility for the AHEM system. The vision also recognizes the inextricable interconnections among the economy, the environment, public health and animal health.

Tools for Turning Insight into Action

Fore-CAN partners developed the following tools to support future thinking and achieve the shared vision.

1. *Plausible future scenarios* (Figure 3) were developed to challenge participants' assumptions, explore issues and broaden shared understanding of a range of future operating environments for AHEM in Canada. The scenario development process considered all of the uncertainties and risks associated with the trends and drivers that had been identified in the scanning exercise, with particular emphasis on what participants considered to be the two critical uncertainties: societal values and the nature of infectious diseases. The scenarios developed describe four distinctly different and plausible operating environments for AHEM in 2025. Based on the characteristics they displayed, the scenarios were called "Asleep at the Wheel," "One World, One Health," "Safe Food Inc." and "In My Backyard." Each scenario stimulates further thinking about the potential risks, threats, challenges and opportunities – and how the trends and drivers may have an impact on the AHEM system.

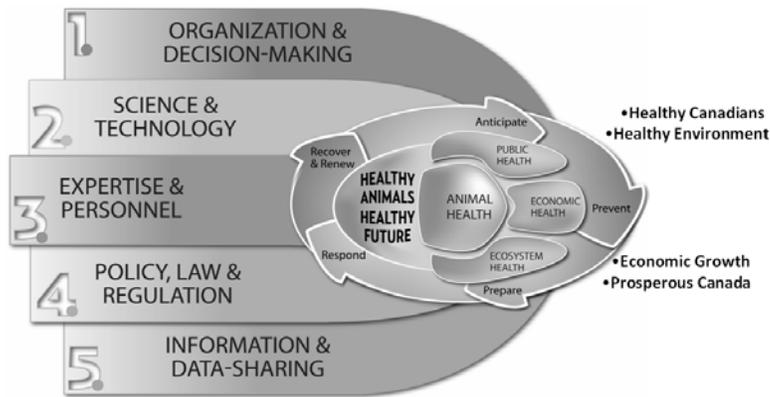
Figure 3. Plausible future scenarios for the future animal health in Canada in 2025



One Health at a Glance www.oie.int/for-the-media/onehealth/

2. *Fore-CAN Integrated Animal Health Risk Management Framework* (Figure 4) comprises four health dimensions in the shared vision (animal health, public health, economic health and eco-system health); five risk management action areas (anticipate; prevent; prepare; respond; and recover and renew); and five key capability areas (Organization and Decision-making; Science and Technology; Expertise and Personnel; Policy, Law and Regulation; and Information and Data-sharing). These dimensions and areas will need to be developed to create a more integrated, agile and adaptive AHEM system that is complementary to the “One Health” concept.

Figure 4. Fore-CAN. Integrated Animal Health Risk Management Framework (simplified)



3. Fore-CAN Integrated Animal Health Emergency Management Roadmap (not shown) identifies key outcomes in the short, medium and long terms, as well as candidate initiatives that could be aligned for building the requirements of each capability area.

4. Fore-CAN Capability Assessment Tool provides a simple, systematic process to help diverse participants make an assessment of: 1) the drivers and impacts of issues across the four health dimensions; 2) where the risk management system may be vulnerable, and where gaps may exist; and 3) why the system may be vulnerable as explained by strengths and weaknesses in key capability areas.

Using the tools in a stepwise fashion is helping diverse groups of participants from science, policy and other backgrounds understand, for example, the complex forces driving the emergence of an infectious disease such as avian influenza, and how the various dimensions of health could sustain direct or indirect consequences and to what degree. If system vulnerabilities and gaps are identified, strategies and activities across organizations can then be aligned to address them, thereby strengthening the risk management system and achieving desired outcomes.

The assessment tool can assist in planning research strategies and action plans by situating research within a broader system of capabilities that need to be developed to support outcomes. For example, other system-level capabilities such as policy development, regulations, education and training and information and communication activities may require an investment in order to optimize the overall risk management system.

Managing Future Animal Challenges

During Fore-CAN, partners and participants gained an understanding of the ability of foresight activities to build relationships and trust among diverse stakeholders, to help develop shared understanding of complex issues and different points of view, and to aid in illustrating connections among processes, functions and organizations within a multifaceted system. Insights were also gained about future threats and challenges to animal health and their interconnectedness, uncertainty and volatility. The importance of ongoing partnerships and the need for a holistic approach to animal health risk management were other learnings that arose from Fore-CAN.

The systematic and collaborative foresight activities of the Fore-CAN initiative harvested the wisdom and experience of participants from over 40 organizations. According to participants, the key achievements of the Fore-CAN initiative included:

1. Recognized value of foresight

Foresight proved to be a powerful catalyst for awareness raising, change, action and innovation. Participants have an understanding of foresight methods and how they can be used to anticipate future requirements.

2. An invigorated animal health community

The community was integrated into the foresight process, learning new skills and building new relationships and partnerships. A network of stakeholders with a shared vision, commitment to collaboration and mutual trust has been developed.

3. A system-level, capability-based framework, roadmap and assessment tool for animal health in 2025

A shared vision has been established along with an integrated framework for action and tools to assist decision-makers in planning and investing in capabilities to achieve desired outcomes within the animal health system.

Partner organizations in Canada have already applied the products of Fore-CAN to think critically and innovatively about animal disease surveillance, emerging zoonotic disease risk assessment, anticipation and intelligence activities, new skill

sets to integrate activities across health dimensions, and the role of inter-disciplinary research teams to define problems and develop solutions.

The insights and tools developed through Fore-CAN have the potential to be adapted and used by participants challenged with working together in any complex system in order to better assess and understand issues and thereby move toward achieving common outcomes.

¹ CBRN Research and Technology Initiative (CRTI) Website: <http://www.css.drdc-rddc.gc.ca/crti/index-eng.asp>

2. Renwick, S. et al. Using foresight to prepare animal health today for tomorrow's challenges. Canadian Vet Journal. 2011 June 52(6) 614-618

3. Vanderstichel, R. et al. Foresight: an innovative approach for animal health emergency preparedness. Canadian Vet Journal. 2010 April 51 (4) 372-374

Secure Milk Supply Plan in Mid-Atlantic States

Charles C. Broaddus

Virginia Department of Agriculture and Consumer Services

An outbreak of Foot and Mouth Disease (FMD) could be devastating to the dairy industry. The imposition of intra- and inter-state movement restrictions to control disease spread would prevent milk from being transported from farms to processors. Milk's perishability and a lack of on-farm storage would cause unsold milk to be dumped, creating financial losses for dairy farmers, a loss of the raw product for dairy processors and a reduction in the dairy products available to consumers. During the initial phase of an outbreak, relatively short-term movement restrictions are likely to be imposed over large areas while the disease incidence is being investigated. Many farms would be affected and the dairy industry would suffer large financial losses. If the disease investigation identifies infected premises then control areas are put in place around these premises that cover smaller areas but these controls remain in place for a longer period. Uninfected dairy farms in these control areas would suffer large financial losses which could cause them to fail.

The Mid-Atlantic Secure Milk Supply (M-A SMS) plan will allow permitted milk to safely move from dairy farms to processing plants and thereby reduce the collateral damage caused by disease control efforts. Because large volumes of milk move from one state to another for processing, regional cooperation will help minimize market disruptions. Since infected cattle may shed the virus but not show physical symptoms for up to four days, any milk from asymptomatic herds must be treated as potentially infected and strict biosecurity measures must be in place if disease control efforts are not to be jeopardized by relaxing movement controls on milk. The plan requires biosecurity procedures on farms, for haulers, and in processing plants. This plan builds on the work of the national Secure Milk Supply initiative's Biosecurity Performance Standards and The Red Book.

Planning ahead is necessary because there will be limited resources available during an FMD event. The M-A SMS plan requires farm premises, haulers, and processing plants to pass a pre-event audit. This is a voluntary program and the incentive to participate is that passing the pre-event audit grants top priority for a movement permit if there is an FMD outbreak and general movement controls are put in place. Businesses failing an audit get a lower priority for permitting and businesses choosing not to participate at all get the lowest priority. The inevitable delays in getting these lower priority premises into compliance would likely create financial losses for them.

Farm biosecurity measures include controlled access of vehicles and visitors to the farm, milk truck washing and disinfection both going on to and leaving the farm, and regular inspections of livestock for possible symptoms of FMD. Milk truck drivers must wear clean full personal protective equipment (PPE) while on-farm. The plan requires appropriate facilities, equipment, supplies, standard operating procedures (SOPs), and training. Milk truck drivers must also wear full PPE while in milk receiving areas at plants and carry disinfectant and a sprayer to disinfect milk spills. Milk plants

must control access, wash and disinfect trucks on entry and departure, and segregate the raw milk areas from the processing areas. All parties must report observed failures to comply with biosecurity procedures to Incident Command or the State Veterinarian.

If FMD occurs and movement restrictions are imposed, farms passing their most recent pre-event audits must also pass post-event biosecurity audits to be eligible for a permit. Farms that did not pass the pre-event audit and those that did not participate at all must come into full compliance before a permit will be issued. Livestock inspections will be conducted separately based on the availability of trained personnel and the characteristics of the disease situation. Haulers and plants that passed pre-event audits are automatically permitted but are subject to random post-event audits.

A draft of the Mid-Atlantic Secure Milk Supply plan has been completed. The next phase of the project has several components: To identify the auditors and industry stakeholders who can assist farmers to come into compliance; to develop training materials and programs; to field test the plan with pilot audits of farms, milk haulers and processing plants across the seven-state area; and to revise the plan and the training program based on the experiences from the pilot testing.

APHIS-VS Readiness and Response Capabilities, and Emergency Response Roles

Lee Myers

USDA-APHIS-VS, National Center for Animal Health Emergency Management (NCAHEM), National Veterinary Stockpile

In the summer of 2011, APHIS-VS program leaders announced the launch of the VS 2015 operational plan, including projects in 18 priorities. The projects exemplified VS' program priorities and how the agency would work in FY11 and FY12 on the goals and objectives laid out in the Veterinary Services: A New Perspective document. Several project teams were formed that comprise three priorities primarily focused on emergency management initiatives. The VS program leaders developed the Emergency Management Outreach and Input (EMOI) project as one of 30 projects centered around 18 implementation priorities that are important programmatically to the future of VS, and its partners and stakeholders. Dr. Randall Levings, Scientific Advisor for Emergency Management and Diagnostics, is the project sponsor, and Dr. Lee Myers, State Federal Liaison for the National Veterinary Stockpile, is the project manager.

Myers explained the background of the EMOI project. The project is aligned with the VS program leadership goal four, which is to support readiness and response, thus balancing the needs of animal agriculture with the interests of people and the environment. Over 20 team members on the project represent all VS units and select stakeholders external to VS, including the AAVLD/USAHA Committee on Animal Emergency Management. The purpose of the project is to initiate the provision of ideas, innovations, and resources (outreach) and to receive participation, contributions, and feedback (input) from APHIS-VS employees (internal) and

non-employees (external stakeholders) on the readiness and response capabilities of APHIS-VS. The project was established August 2011 and will sunset December 2012.

Myers reviewed the EMOI project objectives, which are to: 1) use the VS Marketing and Communications plan to highlight the VS emergency management role and tools available to internal and external stakeholders; 2) promote VS readiness and response tools and capabilities to internal and external stakeholders; 3) develop a strategy for regular recurring meetings to discuss VS readiness and response with internal and external stakeholders; and 4) collect internal and external stakeholder input for the National Center for Animal Health Emergency Management (NCAHEM) list of damaging animal disease threats.

Myers then provided a brief status report on the progress of the EMOI project. She first discussed the review and updating of the NCAHEM list of damaging animal disease threats. The project team solicited input from internal and external stakeholders, and an updated list was provided to the VS program leaders for consideration. Myers then reviewed the development of an informational paper that captures the VS readiness and response capabilities, and emergency management roles. The project team solicited stakeholder input and is in the process of completing the final draft for the VS program leadership. Lastly, Myers requested input from Committee members on a potential strategy for recurring VS readiness and response conferences.

VS is currently in the process of reorganizing into four strategically focused business units. The proposed structure enhances the agency's ability to operate more effectively and efficiently; to address the changes occurring in animal agriculture which bring people, animals, and the environment together; and to provide the services our customers expect. In the new VS structure the animal health emergency management responsibilities will be a component of the Surveillance, Preparedness and Response (SPR) unit. The efforts of the VS EMOI project will continue to be applied as VS moves forward with its Vision and Science initiative.

KAZOO - Kansas Agriculture Zoo Exercise

Sandy Johnson

Kansas Department of Agriculture

The Kansas Department of Agriculture (KDA) was awarded a 10K Cooperative Agreement with USDA-APHIS-Animal Care (AC) to conduct Foot and Mouth Disease (FMD) tabletop exercises with Kansas zoo personnel. The KDA Division of Animal Health set up workshops at eight zoos and provided presentations on the federal, state and local plans for responding to outbreaks of FMD. Each zoo also presented on their facility and their biosecurity and emergency plans. The workshops included personnel from KDA, USDA (Veterinary Services and Animal Care), Kansas Department of Wildlife and Parks and Tourism, Kansas Department of Health and Environment, local emergency managers, extension agents, local law enforcement and zoo directors, veterinarians, and zoo keepers.

The workshop presentations resulted in energetic discussion in many areas. Biosecurity, quarantine zones and their impacts, food supply, susceptible species, economic consequences, social media and notification were the primary subject areas that were discussed at each workshop.

Since there was not enough time at the workshops (scheduled for four hours), it was decided early on in the project to bring the zoos together and do one exercise. This exercise was conducted at the KAZOO meeting (Kansas zoos meet twice a year) in April. The time between the workshops and exercise ranged from four months to several weeks. Tabletop attendees reported that this time was very valuable for them to prepare for the exercise by reviewing and revising the plans and procedures they had in place. It also allowed them to train staff that they brought to the exercise.

Additional exercises are currently being scheduled with the same attendees who attended the workshops at the zoos. These exercises will be conducted with community responders and will also help local emergency managers meet new requirements to receive their funding. As a result of this project, zoo directors will be including more first responders in the exercises that they conduct on a regular basis in order to maintain their Association of Zoos and Aquariums (AZA) accreditation.

This project was highly successful in several areas. It allowed veterinarians from USDA, KDA and the zoos to interact and develop contact information that will be highly valuable in an outbreak. The workshops and exercise(s) provided insight into our current strengths and weaknesses related to foreign animal disease (FAD) planning, training, and exercise activities. Zoos tended to be a forgotten entity in state and local planning activities, this is now not the case in Kansas as a result of this project.

Cross Border Livestock Movement Controls and Permitting

Captain Eric Pippin
Kansas Highway Patrol
Major Scott Copley
Colorado State Patrol

Disease outbreak may strike livestock rapidly and without warning. It's important that states collaborate, communicate, and pre-plan with one another to respond to these emergency outbreaks. In 2009, Kansas and Oklahoma conducted the first bi-state exercise focused on interstate livestock movement control for a disease outbreak in a non-contiguous state. Panelists will discuss the lessons learned from this exercise, and share how the Kansas and Colorado Highway Patrol's, Departments of Transportation and Departments of Agriculture partnered together to adopt a "share the border" approach to include cultivating a common philosophy from the policy and executive level, identifying safe checkpoint locations on state and federal highways, resource requirements, developing a standard permit, communications plan, as well as other challenges and successes of working across state borders.

Flu at the Zoo: A Tabletop Exercise Designed to Assist with Evaluation and Updating of the USDA Association of Zoos and Aquariums (AZA)

Highly Pathogenic Avian Influenza (HPAI) Outbreak Management Plan

Yvonne Nadler

Lincoln Park Zoo, Chicago

Zoo veterinarians and United States Department of Agriculture (USDA) have spent considerable time and resources in preparing the zoological community for Highly Pathogenic Avian Influenza (HPAI), but the opportunities to evaluate preparedness and response plans for this pathogen in the zoological community have been limited. Funded by USDA Animal Care (AC) Emergency Programs and facilitated through the University Of Illinois, College Of Veterinary Medicine, "Flu at the Zoo" was a tabletop exercise designed to assist with evaluation and updating of the USDA Association of Zoos and Aquariums (AZA) HPAI Outbreak Management Plan. This Plan was designed to be used as a guidance document for regulatory agencies when dealing with HPAI in a zoological facility. In addition, stakeholders discussed their various roles in a simulated outbreak of HPAI in zoological facilities.

Developed using Homeland Security Exercise and Evaluation Program (HSEEP) guidelines, the exercise brought together zoological personnel from 16 zoos in Indiana, Illinois and Missouri with USDA (Animal Care, Veterinary Services, Wildlife Services) State Animal Health Officials, Public Health, academics, the poultry industry and other stakeholders. HSEEP exercise structure was chosen as it promotes a standardized set of measures for exercise evaluation.

This presentation will discuss the exercise development, structure, evaluation and highlight lessons learned. While the scenario was developed to examine HPAI preparedness and response for the managed wildlife community, this exercise fulfilled the all hazards approach to response to any infectious disease outbreak involving animals and/or humans associated with a zoological facility.

The authors would like to acknowledge the Flu at the Zoo Planning Team members and the Illinois Farm Bureau, Bloomington Illinois for their contributions to this exercise.

Zoo Best Practices: Emergency Planning Documents and Resources

Yvonne Nadler

Lincoln Park Zoo, Chicago

Two years ago at the 114th meeting of USAHA in Minneapolis, Dr. Yvonne Nadler of Lincoln Park Zoo, and Dr. Kevin Dennison of United States Department of Agriculture (USDA) Animal Care Emergency Programs, discussed the formation of a Best Practices working group for disaster preparedness for the managed wildlife community. A rule change to the Animal Welfare Act had been proposed that would require the development of written contingency plans for USDA licensed facilities. In addition, any personnel required for response would need to be trained to properly carry out those plans. The Working Group was tasked with collecting information

about plan development, training resources, best practices and lessons learned from actual incidents that could be used by any managed wildlife facility for drafting their own unique contingency plans.

Utilizing working group expertise, and well known references such as Federal Emergency Management Agency's (FEMA) *Comprehensive Preparedness Guide (CPG) 101*, key steps to contingency planning are explained with the wildlife community in mind. Then, topic specific Annexes are provided which give checklists of elements to consider in a plan. Throughout all the documents, the importance of integration of facility plans into larger community planning is emphasized.

This presentation will introduce the USAHA community to these materials, specifically designed to assist with drafting or improving contingency plans for the managed wildlife community. The material can be accessed via the following link:

<http://www.zooanimalhealthnetwork.org/Home.aspx>. CDs were available during the session.

Perspective and Update on the NBAF (National Bio and Agro-Defense Facility)

Ron W. Trewyn
Kansas State University

The NBAF mission is to protect the nation's livestock industry, food supply, agricultural economy, and public health from natural outbreaks or intentional introductions of foreign, emerging, and zoonotic diseases. The research to accomplish this mission will be facilitated by a partnership between the Department of Homeland Security (DHS) and USDA. NBAF will replace the antiquated foreign animal disease facility on Plum Island, New York, and it will greatly enhance US biodefense capabilities by vastly increasing both the number and types of infectious disease agents that can be studied.

A rigorous site selection process was launched by DHS and USDA in January, 2006 and the record of decision naming Manhattan, Kansas as the NBAF site was finalized three years later, in January of 2009. Most of the site work for NBAF has now been completed, but construction of the 580,000 ft² laboratory has yet to begin.

A July 2012 report by a National Academy of Sciences committee invalidated the critical need for NBAF and it confirmed that Plum Island is incapable of meeting US agrodefense needs. Importantly, the Secretary of DHS clarified the near-term path forward for NBAF at US Senate hearings in September, so it is anticipated that construction of the NBAF central utility plant will commence soon.

Foreign animal diseases – zoonotic and non-zoonotic, currently known and emerging – will hit the US livestock industry. It's not a question of if; it's only a matter of when. Questions that remain to be answered include: Which foreign animal diseases will ravage the US; how many outbreaks will occur; at what frequency will these epidemics emerge; and will the introductions of non-endemic pathogens into the US be accidental or intentional?

The NBAF bottom line: The agricultural threat is real and the time to protect America is now!

USDA National Veterinary Services Laboratory Emergency Preparedness Update

Elizabeth Lautner, Director

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In FY 2012 NAHLN coordinated several emergency preparedness activities. A negative cohort study was conducted for detecting FMD in bulk tank milk samples with the goal of validating a real-time polymerase chain reaction (rRT-PCR) assay for FMD in bulk tank milk. An inter-laboratory comparison was completed earlier in FY 2012 to evaluate the variability between laboratories and provide information on the reproducibility and ruggedness of the assay. NAHLN also provided training to laboratory and State personnel on the implementation of VS Memo 580.4 [Procedures for the Investigation of Potential Foreign Animal Disease/Emerging Disease Incidents] as it relates to decisions and actions that affect the laboratory during a foreign animal disease investigation. A Quality Management System (QMS) Training Program was also provided that covered quality system requirements, the accreditation process, document control, internal auditing, and root cause analysis. Through collaborations with the Foreign Animal Zoonotic Disease Center (FAZD) at Texas A&M a Laboratory Capacity Estimation Program (LCEM) has been developed. This is a web-accessible software tool for laboratories to input information on processing, testing and reporting capacity. A pilot web-based exercise series was also conducted that leveraged existing tools, including the LCEM, the NAHLN Portal and VS' Outbreak Surveillance Toolbox.

NVSL was also actively engaged in VS' activities related to Schmallenberg virus (SBV), after identification of this disease in the European Union (EU). SBV reference antiserum and protocols for diagnostic testing were received from collaborators in Germany. NVSL subsequently initiated PCR testing to detect SBV RNA, and virus neutralization (VN) testing for SBV antibody detection at both the Ames, IA and Plum Island, NY laboratories. Submissions to date have been from sheep and cattle, with fetal tissues the primary samples for PCR and dam being tested by VN. Neither SBV nor SBV antibody has been detected in any samples submitted.

Committee Business

Three resolutions submitted by committee members were adopted.

Resolution #1 - Use of 840 RFID Ear Tags for Use in Identification of FMD "Vaccinated-to-Live" Livestock

Resolution #2 – Support for the National Bio and Agro-Defense Facility

Resolution #3 - Evaluate FMD Vaccine Response Policy and Capabilities

The Committee voted to support a resolution from the Committee on Johne's regarding research funding.

SECURE TURKEY SUPPLY PLAN – ISSUING MOVEMENT PERMITS DURING AN OUTBREAK OF HIGHLY PATHOGENIC AVIAN INFLUENZA

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I. Secure Turkey Supply Plan

The Secure Turkey Supply Plan contains scientifically sound sampling protocols and proven, highly sensitive testing methods which will be employed in the event of an outbreak of highly pathogenic avian influenza (HPAI). Prior to issuing movement permits for turkeys and turkey eggs in a Control Area, stringent biosecurity measures must be in place on the premises of origin for a sufficient period of time to provide a high degree of confidence that HPAI has not been recently introduced so that the flock could be infected, but undetected. In addition, turkeys must be free of clinical signs associated with HPAI and flock mortality must be within normal parameters before movement of live turkeys will be allowed. The Plan will help avoid restrictions on interstate or international trade, by providing a high degree of confidence to regulatory authorities in other states and other nations that no turkeys infected with HPAI virus will leave a Control Area. All poultry producers in a Control Area can be assured that turkeys moving under a permit issued by the Incident Command do not endanger the health of other uninfected flocks. Lastly, regulatory agencies with public health responsibilities, including the USDA Food Safety Inspection Service and the U. S. Food and Drug Administration, can have a high degree of confidence HPAI virus is absent from turkey products intended for use in animal agriculture or for human consumption.

The Secure Turkey Supply Plan will be supported by risk assessments of potential poultry health impacts and risk assessments of possible public health impacts associated with movement of infected but undetected turkeys from a Control Area during an outbreak of HPAI. A risk assessment of the potential public health impact has been completed (Interagency Risk Assessment for the Public Health Impact of Highly Pathogenic Avian Influenza Virus in Poultry, Shell Eggs, and Egg Products – May 2010; Appendix K). This risk assessment was based on detection of HPAI in the index flock in an outbreak. Future risk assessments for the STS plan will be based on detection of HPAI in turkey flocks under increased surveillance in a Control Area.

The Secure Turkeys Supply Plan Working Group — the multidisciplinary team assembled to prepare the Plan — includes members of the following organizations:

- Iowa State University Center for Food Security and Public Health (CFSPH);
- University of Minnesota Center for Animal Health and Food Safety (CAHFS);
- National Turkey Federation (NTF);
- Association of Veterinarians in Turkey Production; and
- The USDA Animal and Plant Health Inspection Service Veterinary Services (USDA APHIS VS) Centers for Epidemiology and Animal Health (CEAH) and National Center for Animal Health Emergency Management (NCAHEM).

The Secure Turkeys Supply Plan was created by a public-private-academic partnership and provides specific recommendations that emergency response decision makers (such as Incident Commanders) can use in assessing animal health risks in order to rapidly decide whether to provide or deny permits for the movement of turkeys during an HPAI outbreak. This plan is subject to revision as advances in science occur, the characteristics of HPAI evolve, and as risk assessments are completed. The Secure Turkey Supply Plan supports a continuous supply of turkey products for the U.S. public, facilitates market continuity for the turkey sector and its customers, and fosters a high level of government, industry, trading partner, and consumer confidence in Foreign Animal Disease preparedness and response efforts.

II. **Biosecurity Recommendations for Commercial Turkey Premises**

1. Biosecurity must be in place on the premises of origin before movement permits will be issued for turkeys in a Control Area. A copy of the premises' biosecurity plan must be provided to the Incident Command. A high level of biosecurity (Level 2) will be necessary before approval to move turkeys or turkey-related products can be given, but **BIOSECURITY ALONE DOES NOT GUARANTEE APPROVAL**. Before Incident Commanders approve such movement, the results of a) Active and passive surveillance; b) Geographic proximity to infected premises; and c) Other pertinent factors will be considered. The Incident Command will determine the time period for which biosecurity measures must be in place before turkey eggs or live turkeys are allowed to move.
2. Recommended (not required) biosecurity measures (Level 1) for turkey producers to implement prior to an outbreak have been developed based upon extensive input and discussion from turkey industry veterinarians, state and federal epidemiologists, university poultry veterinarians, and federal regulatory agencies. Implementation of these biosecurity measures prior to an outbreak will significantly reduce the likelihood that the HPAI virus will be introduced onto a commercial turkey premises.
 - Level 1 biosecurity measures are recommended (not required) for turkey farms prior to an outbreak of HPAI .

- Level 2 biosecurity measures are recommended following diagnosis of highly pathogenic H5 or H7 avian influenza in a region before turkeys can be permitted to move. The Incident Command will determine which specific biosecurity measures must be in place before turkey eggs or live turkeys are allowed to move.

III. **Epidemiology Information**

1. A short epidemiology questionnaire is available for turkeys moving from a grow-out house to market. A longer epidemiology questionnaire is used for movement of all other turkeys and turkey eggs.
2. Epidemiology questionnaires should be completed whenever a new infected premises is identified.
3. In the event of an outbreak of HPAI, the epidemiology questionnaire shown in Appendix D will be used by the Incident Management Team a) for infected, suspect, and contact premises and b) non-infected breeder farms moving eggs to a hatchery, and c) non-infected brooder farms moving turkeys to a grow-out facility. If turkeys are to be moved interstate, the SAHO of the destination state may require information from the epidemiology questionnaire prior to granting permission for turkeys to enter their state.
4. For infected premises, the questionnaire will assist epidemiologists to a) Assess risk factors associated with employees, wild birds, and carcass disposal; b) Determine how HPAI may have been carried onto a farm (trace back information); and c) Determine where HPAI may have traveled from a farm (trace forward information).
5. For non-infected turkey premises and hatcheries, this information will assist epidemiologists should HPAI be diagnosed at a later date on one of these premises.
6. For all premises within a HPAI Control Area, epidemiology questionnaire information will be used to help classify premises as Contact Premises, Suspect Premises, At-Risk Premises, or Monitored Premises.

IV. **Pre-Movement Active Surveillance by Real-Time Reverse Transcriptase Polymerase Chain Reaction (RRT-PCR) Testing for Monitored Premises in a Control Area**

1. **Disease Detection Surveillance for Commercial Premises in a Control Area.** Swabs shall be collected from the 5-bird pool sample(s) selected from the daily dead birds or euthanatized sick birds from each flock on each premises every other day for 14 days. Contact Premises, Suspect Premises, and Monitored Premises that test negative should then be sampled as described for At-Risk Premises. Monitored Premises may be sampled more frequently depending on the need to ship product but at the minimum must be sampled as listed above. For At-Risk Premises, swabs should be collected for the 5-bird pool(s) on each premises once every 5 days for the duration of the quarantine. If daily mortality exceeds 2/1,000 birds in turkeys greater than 2 weeks of age, further diagnostic activities will be initiated and the Incident Command will be notified.

2. **Pre-Movement Sampling and Testing Protocol for Monitored Breeder and Commercial Premises.**

- a. *Number of Turkeys Sampled.* One 5-bird pooled sample must be tested by RRT-PCR for each 50 dead turkeys and found to be negative from every house on the premises for two consecutive days prior to movement of live turkeys or turkey eggs. The time interval between collection of samples on consecutive days must be at least 18 hours. If there are less than 5 dead turkeys in the house, the remainder of the samples should be taken from sick turkeys. Two 5-bird pooled samples that test negative provide a 95% level of confidence that HPAI will be detected if at least 40% of sampled turkeys are shedding HPAI virus. For products that move daily, one 5-bird pool from each house on the premises must test negative by the RRT-PCR test on each day prior to movement of eggs and turkeys.
- b. *A 5-bird pooled sample* consists of combined samples taken from five turkeys from each flock on a premises that died of natural causes during the preceding 24 hours or sick turkeys that were euthanized during the preceding 24 hours. If there are less than 5 dead turkeys available to create a pool, remaining samples should be taken from euthanized sick turkeys.
- c. *A flock* consists of turkeys of the same age in one building which are marketed on the same day.
- d. *Time to Sample Dead or Euthanized Sick Turkeys.* Samples must be taken within 24 hours prior to movement of live turkeys (or turkey products) from the premises. If an unusual HPAI virus proves to be slow-moving, adjustments to the sampling protocol will be made. For example, if turkeys from one farm will be marketed on four consecutive days, then samples will be collected each day for four days from all barns with birds. Targeting dead and euthanized sick birds reduces the sample size required for the 99% confidence level because the prevalence of HPAI infected birds should be higher in this group than in the house as a whole.
- e. *Turkeys Selected for Sampling.* Oropharyngeal swabs must be taken only from dead or euthanized sick turkeys and dead turkeys should be sampled before sick turkeys. Sick birds selected for euthanasia and sampling should exhibit clinical signs compatible with HPAI (depression or respiratory signs).
- f. *Location of Sampling.* Dead turkeys from each house (flock) must be placed in a leak-proof container (such as a heavy-duty plastic garbage bag) each morning. Each container shall be labeled with the farm of origin, house of origin,

number of birds found dead in the house that day, and the premises identification. Containers must be brought to a location near the premises designated by the Incident Command (IC).

- g. *Sampling Procedure.* An individual authorized by the IC will sample each turkey by swabbing the oropharynx of each dead turkey in the leak-proof container. One Dacron swab is used to swab the palatine (choanal) cleft on the roof of the mouth and the trachea of one turkey, picking up as much mucus as possible. Thereafter, the swab is vigorously swirled in 1.0 to 2.0 ml of Brain-Heart Infusion (BHI) broth and as much fluid as possible is squeezed out of the swab by pressing the swab on the inside of the tube before withdrawing the swab from the BHI tube. Swabs from 5 turkeys should be swirled in one BHI tube.
- h. *Disposal of Turkeys after Sampling.* After samples have been taken, farm personnel shall dispose of carcasses in accordance with an approved biosecurity protocol.
- i. *Laboratory Submission.* BHI tubes containing oropharyngeal samples (5 oropharyngeal swabs/BHI tube) will be submitted as directed by the IC to an authorized State Veterinary Diagnostic Laboratory (VDL). These samples must be submitted on the day of sample collection by a State or Federal regulatory official or an IC-authorized person. The State VDL and IC will establish the time of day by which samples must be submitted to an authorized VDL (for example, by 12:30 p.m.).
- j. *Laboratory Testing and Reporting.* VDL personnel performing RRT-PCR will test samples immediately upon receipt and electronically send test results to the IC by the end of each day. The IC will report test results to farm managers as soon as results are available. If the RRT-PCR test on the dead bird pool is not negative, additional diagnostic testing will be conducted.
- k. *Negative RRT-PCR Results Required.* Prior to movement, all premises' tests of 5-bird pools taken 24 hours before movement must be negative.

V. **Flock Mortality Data and Visual Inspection prior to Movement**

1. Prior to moving turkeys to any other location, turkey producers will be required to electronically submit records of daily mortality for the preceding 7 days for each turkey management unit on the premises to the Incident Command. If daily mortality is abnormally high (more than 2/1,000 birds in a flock) immediately prior to a scheduled movement, turkeys shall not move until diagnostic steps have been initiated and the cause of elevated mortality ascertained. In addition, company veterinarians or independent producers

will be required to report significant unexplained changes in feed consumption, water consumption, or behavior.

2. Visual inspection of turkeys in all houses on premises within 24 hours prior to movement will be required for all premises located in the Control Area (Infected Zone plus Buffer Zone) that wish to move turkeys. Visual inspection may be performed by a company-designated individual.

3. If 50 or more dead turkeys are present in the finishing house immediately prior to or during load-out, the Incident Command must be contacted before turkeys are removed from the house.

VI. **Secure Turkey Supply Plan Data Portal**

A data portal will be needed for use during an HPAI outbreak by State and Federal regulatory officials to collect mortality data, monitor production parameters, record the results of the epidemiology questionnaire, and record RRT-PCR results from all turkey farms in a Control Area.

VII. **Recommended Criteria for Issuing Movement Permits**

In the event of a highly pathogenic avian influenza (HPAI) outbreak, ensuring market continuity for the turkey sector will be a significant challenge. By planning prior to an HPAI outbreak, the Secure Turkey Supply Plan promotes food availability, food safety, and animal health. The Secure Turkey Supply Plan provides clear recommendations for emergency response leaders to facilitate movement of turkeys and turkey hatching eggs.

1. **Avian Influenza Monitored Premises.** In the event of an outbreak of HPAI, only movement of live birds from AI Monitored Premises will be considered. Monitored Premises are located in the Infected Zone or Buffer Zone, which constitute the Control Area. Monitored Premises have susceptible birds that do not have clinical signs (or other epidemiological evidence) compatible with HPAI.

2. **Risk Reduction Measures.** Prior to permitting, potential contact with infected and/or epidemiologically linked flocks and the biosecurity of premises containing these flocks will be assessed. Methods to reduce the risk associated with moving live turkeys or turkey hatching eggs include the following:

- *Pre-movement restrictions* – no dangerous traffic (involving contact with manure, live or dead birds or crews or equipment) will be allowed onto the farm for 5 days before movement.
- *All In-All Out* – all turkeys should move within a time period approved by the Incident Command (IC).
- At the time of loading, mortality must be within normal limits and clinical signs associated with HPAI must be absent.
- *RRT-PCR testing* for the avian influenza matrix gene is required from one 5-bird pooled sample for each 50 dead turkeys from every house on the premises for two consecutive days prior to movement of live turkeys or turkey eggs. If one or more initial samples test positive, samples will be further tested for H5 and H7 avian influenza genes.

- If *supplemental diagnostic tests* are conducted prior to movement of turkeys, results must be reported to the IC.
 - After the move, *turkeys not moving to market* (brooder turkeys to grower unit, replacement breeders to egg production unit) must be monitored as directed by the IC.
3. **Turkey Hatching Eggs.** Turkey breeder hens and toms producing fertile hatching eggs must test negative for avian influenza matrix genes by the RRT-PCR test before hatching eggs will be allowed to move from a breeder farm to a hatchery
 4. **Turkey Poults.** Movement of turkey poults from a hatchery to a brooder house is considered to pose a low to negligible risk. Restrictions on movement of poults from a hatchery to a brooder house will be limited to ensuring that the receiving facility can provide a safe environment wherein poults will not be exposed to potentially infected older turkeys.
 5. **Immature Turkeys.** Immature turkeys in a brooder house must test negative by the RRT-PCR test before they will be allowed to move to a finishing house.
 6. **Mature Turkeys.** Turkeys in a finishing house must test negative by the RRT-PCR test before a permit will be issued which allows them to move to a processing plant.
 7. **Public Health.** The Interagency Risk Assessment for the Public Health Impact of Highly Pathogenic Avian Influenza Virus in Poultry, Shell Eggs, and Egg Products (May 2010) has determined that the risk of transmitting HPAI virus to humans via the food supply is negligible.
 8. **Permitting Guidance Recommendations.** The table below provides guidance for regulatory personnel responsible for issuing permits for movement of turkeys and turkey hatching eggs in a Control Area during an outbreak of HPAI. If the answer to all questions is “Yes,” then it is recommended that movement permits be considered.

| Permitting Guidance for Movement of Turkeys and Turkey Hatching Eggs | |
|---|-----|
| 1. Level 2 Biosecurity Measures are in place? | Yes |
| 2. Traceability Information is Available (Premises ID, GPS Coordinates, other)? | Yes |
| 3. Epidemiology Questionnaire data is acceptable? | Yes |
| 4. RRT-PCR tests are negative for samples collected during the preceding 24 hours? | Yes |
| 5. Mortality is no more than 2/1,000 turkeys in the flock for each of the preceding 7 days? | Yes |

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|---|---|
| 6. Visual inspection is normal within 24 hours prior to movement? | Yes |
| 7. Fewer than 50 dead turkeys are present in the house immediately prior to loadout. | Yes |
| 8. Drivers and trucks are biosecure; the route from the farm of origin to the grow-out house or turkey processing plant avoids poultry farms? | Yes |
| 9. Permit Guidance to Move Turkeys | Consider Issuing MOVEMENT PERMIT |