

## REPORT OF THE USAHA/AAVLD COMMITTEE ON ANIMAL EMERGENCY MANAGEMENT

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The Committee met on Saturday, October 19, 2013, at the Town and Country Hotel, San Diego, California, from 8:00 a.m. to 1:00 p.m. There were 54 members and 44 guests present. At the beginning of the meeting, the mission statement for the Committee on Animal Emergency Management (CAEM) was reviewed and responses to 2012 resolutions were read. Eleven presentations were heard, one of which was a time-specific paper.

### **Time-Specific Paper**

James Roth, Center for Food Security and Public Health, Iowa State University presented a time-specific paper on the Secure Food Supply Plans to Protect Animal Agriculture and the Food Supply in and FAD Outbreak. The paper, in its entirety, is included at the end of this report.

### **Presentations**

#### **USDA-APHIS-VS National Center for Animal Health Emergency Management (NCAHEM) Projects and Planning Update**

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

Dr. Lee Myers provided the update from the USDA-APHIS National Center for Animal Health Emergency Management on behalf of Dr. Jonathan Zack, Director of Preparedness and Incident

Coordination. Myers focused her comments on the VS reorganization plan, the VS training and exercise initiative, and new countermeasures within the NVS.

Myers explained that the VS reorganization will become effective in early November, 2013. This is a few weeks later than originally anticipated but with recent events and the need to restore regular operations; it was prudent to postpone implementation. Once VS begins operating in the new structure, it will take time for VS and stakeholders alike to fully acclimate to the new structure, and work out all the details and business processes. The guiding principles of the reorganization are to align the organizational structure with the VS 2015 vision and New Perspective goals, consolidate business activities by functional area to provide more streamlined services, optimize the structure to meet the demands of strategic objectives and declining budgets, and strategically align resources to ensure efficiency. The new structure aligns VS mission operations by creating four strategically focused organizational units: National Import Export Services; Science, Technology and Analysis Services; Surveillance, Preparedness, and Response Services (SPRS); and Program Support Services that will provide foreign animal disease technical training through the VS Professional Development Staff.

The new SPRS unit will focus on a broad spectrum of animal health centered on each of the major animal health commodity groups as VS budget line items are configured. The SPRS structure will be comprised of Animal Health Centers, the National Preparedness and Incident Coordination Center, the SPRS Logistics Center (which will house the NVS), the One Health Coordination Center, and the six geographical Districts. Each District will utilize a District-wide approach to services and a variety of District Teams led by Assistant District Directors (ADDs). This will ensure SPRS can most effectively utilize its resources while meeting the needs of State Animal Health Officials and other external stakeholders. The ADDs will serve as the primary point of contact for State Animal Health Officials, ensure cooperative programs are effectively implemented, engage stakeholders, and supervise the animal health staff within assigned States. Key services in the SPRS unit will be:

- Animal health incident management
- Commodity business planning
- Disease program, surveillance, and animal disease traceability policy setting and administration
- Emergency preparedness
- Epidemiologic investigations and tracing
- Veterinary accreditation
- Veterinary stockpiling

Customer service is important to VS and all personnel will be diligently working to ensure that customer needs are met during the transition to the new structure.

Myers reviewed the new VS training and exercise (T&E) initiatives which began in May 2013. A VS T&E planning team conducted the premier T&E planning workshop in July 2013 and developed a draft VS T&E strategy and multi-year plan. The purpose of a multi-year plan according to the Federal Homeland Security Exercise and Evaluation Program is to translate strategic goals and priorities into specific T&E activities, and to coordinate and de-conflict all of these activities on a schedule. The VS T&E planning team identified specific priorities, objectives, and specific events for the next three years. Once approved by VS leadership, the VS T&E plan will be implemented beginning in Fiscal Year 2014. The VS T&E planning team is expected to continue its initiatives, expand the team to include more stakeholders external to VS, and conduct annual T&E planning workshops.

Myers then reviewed recently acquired countermeasures within the NVS. New countermeasures support cold chain management, animal handling, and emergency transport. Myers also emphasized that NVS contractors are receiving hands-on, field training to enhance capabilities for response support services. She highlighted the future NVS exercise partners and reviewed the status of State, Tribe, and Territory NVS planning.

## **Current Vaccinology Considerations in North American Foreign Animal Disease Events – Implications for Foot-and-Mouth Disease (FMD) Preparedness and Response**

Gay Miller, University of Illinois

### **Key Considerations for Vaccination**

The importance of the disease under consideration relates to many factors. FMD is among the diseases of highest concern. "... Its importance to mankind is confirmed by the fact that FMD virus (FMDV) was the first animal virus discovered...." FMD was one of the first diseases for which vaccines were developed. Over time, we have realized "... vaccines are very useful as part of an eradication campaign in countries where FMDV is enzootic... these vaccines are not ideally suited to control outbreaks in disease-free countries..." Thus, there is a need for new FMD vaccines (Mason and Grubman).

There are three main formulations used in inactivated FMD vaccine manufacturing: high potency vaccines (used for emergencies); oil-emulsion conventional vaccines (used for routine control), and aluminum hydroxide vaccines (used in cattle). Ideal characteristics for emergency use FMD vaccines include that they provide rapid onset of protective immunity, broad cross-protection across serotypes, have lifelong duration of immunity, have a stable and long shelf life, are DIVA compatible and have thermal stability, prevent infection, have no requirements for high manufacturing bio-containment, have short withdrawal periods for slaughter, and can be rapidly modified to include emerging strains (Rodriguez and Gay). The standard held by the USDA for emergency use vaccines is to administer high quality, high potency (6PD<sub>50</sub>) vaccines which provide a wider spectrum of immunity and also rapid onset of protection (OIE).

Vaccines can only be effective after administration. In the case of FMD vaccine, use is controlled by the federal government. It would not be economically appropriate to administer vaccine prior to an outbreak in a country such as the U.S. where the probability of introduction of the disease is low (Miller et al, 2012), and for a disease like FMD with such a large number of different serotypes. Also, vaccine administration can complicate surveillance during an outbreak; thus, controlling its use is appropriate.

### **Aspects of FMD Vaccination – Where is the U.S. in terms of capability?**

Homeland Security Presidential Directive Number 9 mandated the formation of the National Veterinary Stockpile (NVS). The NVS is to have critical veterinary resources available for delivery to animal disease outbreaks within 24 hours.

FMD vaccination is a critical veterinary resource. FMD vaccination can be delivered within 24 hours of a decision to vaccinate, but this timing is only achievable because the decision to vaccinate takes time. It takes time to assess the ground situation and the effectiveness of initial containment measures which will most likely be movement controls and depopulation of infected premises. FMD vaccine would generally not be deployable in the U.S. within 24 hours of identification of a known positive animal.

The funding USDA has and is receiving is insufficient to provide adequate FMD vaccine stockpiles. An outbreak of FMD which occurred in a higher livestock dense area such as Iowa and which was not contained rapidly with stamping out could quickly outstrip the emergency FMD vaccine stockpiles, just as what happened with the outbreak in Korea. The Korean outbreak depleted the banks of FMD vaccines from around the world in order to vaccinate a population roughly half the size of Iowa. For an outbreak in Iowa, with over 20 million hogs and approximately four million cattle, the number of doses of vaccine used could easily exceed 50 million in a very short time just to vaccinate at risk animals in Iowa.

There is no magic spigot to access FMD vaccines; insufficient vaccination capacity limits the ability of the U.S. to be able to effectively respond with a vaccination strategy should that be the response choice made by USDA. Also, the USDA has decreased the veterinary field force over the last several years, further limiting response capabilities. Indeed, a modeling study in Minnesota revealed that government vaccination teams in Minnesota could only vaccinate 50 herds per day, far fewer than the number and speed which could be and need to be vaccinated. Large scale vaccination (1,500 herds per day) can be met using producer/private practitioner vaccination teams (Miller et al, 2013).

Most potential U.S. Incident Commanders were in favor of a vaccination response within two weeks of identifying the first case in a relatively small FMD outbreak occurring in the Midwest (Parent, Miller, & Hullinger). The case for vaccination has been building over the last decade beginning with the use of vaccination in Uruguay, Argentina, and The Netherlands (2001), and most recently with outbreaks in Japan (2010) and South Korea (2011). In all of these countries, vaccination was used after the initial strategies of stamping-out, and movement controls failed to contain the spread of FMD.

### **What does recent research tell us?**

Ideally vaccines are used that are immunologically matched with the field strain causing an outbreak. However, new variants of disease develop and it takes many months to produce a new vaccine matching a newly emerged strain. Under such circumstance, knowledge of the potential use of related and/or immunodominant vaccine strains can be valuable (Sarangi, et al.). At least for FMDV type A, high potency vaccines can induce protection even against heterologous challenge (Brehm, et al).

Vaccination was used in the FMD epidemic in Japan (Muroga et al). Similar to the 2001 U.K. outbreak, epidemiological investigations revealed that FMD had been introduced approximately one month prior to detection. Farms awaiting livestock destruction exceeded 100 over a two week period during the peak of the epidemic; it was with this circumstance that the government decided to implement emergency vaccination in all cattle and pigs. The epidemic occurred in an area with high cattle and pig density, increasing speed of FMD spread and making choice of suitable burial sites difficult.

The economic impact of FMD is higher overall in FMD endemic countries (total global visible production losses and vaccination costs U.S. \$6.5-21 Billion/year) than in FMD-free countries which have outbreaks (>U.S. \$1.4 Billion/year). The estimated number of vaccines used per year worldwide is 2.35 billion doses, with China administering 68% of all doses administered. In many countries and regions, all animals are vaccinated on average more than once per year (Knight-Jones & Rushton).

#### **Implications for Preparedness and Response**

The U.S. needs a plan for vaccine distribution, and vaccine administration. This plan needs to outline vaccination priorities (by species and circumstance). How vaccine will be distributed goes well beyond NVS delivery to distribution sites. Vaccine distribution plans need to include distribution to sites that are accessible (via communication and delivery) by the individuals who will be responsible for vaccine administration. Interestingly, vaccination in the recent FMD outbreak in Japan gave priority to pigs over cattle, with vaccination proceeding from the zone perimeter inwards (Muroga et al).

The U.S. needs models and scenario analyses which analyze and determine the appropriate timing to implement vaccination, and which identifies epidemiological aspects revealing when an outbreak cannot be easily or economically contained with stamping-out (Miller and Parent). So-called epidemic optimization models (Carpenter et al) are perhaps best at meeting such needs.

“Emergency vaccination is an effective control strategy for FMD epidemics in densely populated livestock areas, but results in a six-month waiting period before exports can be resumed, incurring severe economic consequences for pig exporting countries.” (de Vos et al). Their model results indicated that resuming exports after the six-month waiting period (based on OIE guidance) does not reduce the probability (relative to a one-month or three-month waiting periods) that processed carcasses are derived from FMD-infected pigs if the area was declared FMD-free incorrectly. Stated another way, the risk of exporting an infected carcass is no higher with a one-month waiting period than with a six-month waiting period.

The U.S. needs to use a vaccinate-to-live policy whenever possible. Stamping-out, a common approach in eradicating diseases in the past, can prevent many animals from entering the food chain even when they are not affected by the disease, resulting in an enormous wastage of animal protein. The implications of this are becoming less politically and socially acceptable. Compared to depopulation of vaccinates, a vaccinate-to-live policy will delay return to FMD-free status as designated by the OIE. However, the real impact on time for resumption of trade is unknown. It is likely that trade barriers will prevent U.S. exports for a significant period of time following an FMD outbreak.

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### **Planning for an FMD Outbreak Response in California: Vaccination and Beyond....**

Lisa Quiroz, California Department of Food and Agriculture

This presentation provides an overview of the critical steps necessary for developing and executing emergency animal disease response strategies such as Foot and Mouth Disease (FMD) vaccination. Three critical components of FMD strategy development are discussed: pre-event planning, increased awareness, and collaboration. A significant amount of pre-event planning is required to develop and ultimately execute an effective FMD vaccination strategy. In California, the planning has focused on a vaccine distribution and delivery strategy for the dairy industry. Planning for this approach has involved private veterinarians and the dairy industry. Initially the plan was to engage private vendor cold storage logistics companies and private practitioners to distribute vaccine to premises while on-farm dairy personnel would be used to administer vaccinations. An on-site validator would stay on the premises during vaccination to ensure proper cold chain and that animal identification is applied and/or captured and submitted to the Incident Command. This approach was tested during a California field level operational exercise focused on delivery of FMD vaccine to the dairy industry. Lessons learned from the exercise are highlighted. Many of the exercise after action items are being addressed through current preparedness initiatives. One after action item identified the need to integrate private third party cold chain vendors for vaccine cold storage, repackaging and distribution. The California Department of Food and Agriculture (CDFA) recently launched a project, working with the National Veterinary Stockpile, to explore this strategy and determine the scope of services that would be necessary to secure private vendor cold storage and distribution services. Another project focuses on development of an FMD vaccination decision matrix and criteria for prioritizing vaccinates. There is a great need for increased awareness when planning for a new disease response strategy like FMD vaccination. We must train our field response staff on these newly developed strategies and test their capabilities to execute our plans. We must engage industry. We continue working with industry representatives to develop Secure Milk Supply producer and processor level business continuity plans for milk movement, establishing biosecurity guidelines and encouraging pre-certification levels to expedite movement permits during response. In California we began with engaging the dairy industry, but we must now branch out to other industries to socialize our response strategies and plan for their unique circumstances. Collaboration with other states and our Federal partners is critical. We need to engage other States in our planning so that we can learn from their experiences and perspectives. We cannot do this planning in a bubble because the decision to vaccinate affects us all. There are many factors and considerations to be taken into account when selecting a response strategy in the face of an FMD outbreak. While each event will be unique, working through and discussing approaches by state or region in advance of an event should put us in a position to make better informed and timely decisions in a real event.

### **2012 Research Overview: Effective FMD Outbreak Communication**

Cindy Cunningham, National Pork Board

A U.S. outbreak of Foot and Mouth Disease (FMD), no matter the size, could ultimately threaten the entire U.S. economy, as well as pose serious animal health consequences and negatively impact trade

and commerce. Controlling FMD, or eradicating it if an outbreak did occur, will require cooperation among those in agriculture, tourism and commerce as well as coordination among private industry groups and the government.

For nearly 12 years, communication and issues management specialists from Dairy Management Inc. (DMI), the Beef Checkoff through the National Cattlemen's Beef Association (NCBA), the National Pork Board supported by the National Pork Producers Council and the American Sheep Industry Association (ASI) have worked together as the FMD Cross-Species Communications team. Working closely with the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), the team drives FMD crisis communications response preparation and educates industry stakeholders to help ensure a unified response in the event of an U.S. outbreak.

The team recently conducted consumer research, which included focus groups and a national survey, to understand consumer knowledge of FMD and gain feedback and acceptance on consumer key messages to use if an outbreak did occur. In addition, a special emphasis was placed on understanding consumer awareness and perceptions of livestock vaccination.

**Lessons Learned** - In the event of an outbreak, quick, consistent and accurate communication will be imperative to instilling consumer confidence in the safety of milk and meat.

According to the team's consumer research, 85 percent of consumers believe they have heard of FMD, but research also shows public awareness and understanding of FMD is limited, and confusion between FMD and other animal diseases and human ailments, such as Hand, Foot and Mouth Disease, is common. In fact, according to the research, 49 percent of survey respondents believed small children can contract the disease. These recent findings reinforce the need for ongoing, proactive communication and consumer education.

In terms of messaging, consumers responded best to messages that were relevant and compelling, show collaboration between the industry and government, and provide evidence and credible sources, resonated the most with consumers. Audiences also expressed interest in more information and details on the disease, its impact, and international landscape and also want reassurance that there is collaboration and a plan in place.

**Implementing Action** - The FMD Cross-Species Communications Team continues to make strides in coordinating industry response and promoting collaboration among agricultural groups to better prepare for an FMD outbreak. Understanding the research findings and feedback from consumers has helped to improve the plan and approach and has led to the recent approval of the messaging track by the USDA for use during the event of an outbreak. Through various initiatives and activities, the team works to continuously strengthen relationships among industry and the ability to reduce consumer confusion and instill confidence in the safety of the meat and milk.

### **Regional Agrosecurity Alliances Panel Discussion**

Mike Starkey, Minnesota Department of Agriculture

Susan Dixon, Iowa Homeland Security and Emergency Management Department

Greg Christy, Florida Department of Agriculture

Charlotte Krugler, South Carolina Department of Agriculture

Kristin Hass, Vermont Agency of Agriculture

**MSP** - The Multi-State Partnership for Security in Agriculture (MSP) has provided a platform for regional collaboration of food and agriculture security issues for ten years. The Iowa Homeland Security Department along with nine Midwestern states established the Partnership in 2003 and it has expanded to 15 states in 2013 (Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, New Mexico, North Dakota, Ohio, Oklahoma, South Dakota, and Wisconsin). Iowa Homeland Security and Emergency Management continue to this day as the coordinating agency.

The value of the MSP projects and collaboration efforts are based on the understanding that a major food or agriculture emergency would not respect state boundaries and that cooperation and collaboration would benefit all states. The following is a list of the MSP projects over the past ten years:

- Risk/Crisis Communications Workshops
- Animal Disease Message Maps
- Media Resources Pocket Guide
- Food, Crop, Animal Disease Plan Templates
- National Business Continuity Workshops
- Euthanasia/Carcass Disposal Demonstration

- Equipment/PPE Response Cache (72 hours)
- Incident Management Teams
- Stop Animal Movement Exercise (KS/OK)
- National Agriculture Security Symposium
- All-Hazards Preparedness Guide for Producers
- Critical Infrastructure Assessments
- National Veterinary Stockpile Exercises
- Crisis communications/Social Media Training
- Just-In-Time Training Modules
- Emergency Movement Control

The MSP will continue to fulfill its mission to...collaborate to benefit member states, coordinate risk communications, maximize resource sharing and minimize duplication of effort by:

- Developing and sustaining core capabilities;
- Assessing and reducing critical infrastructure risk; and
- Sharing preparedness opportunities for natural and high consequence incidents that may impact the food and agriculture sector.

**SAADRA** - The Southern Agriculture and Animal Disaster Response Alliance (SAADRA) was organized in the spring and summer of 2006. Following the devastation from Hurricane Katrina, Mississippi had received assistance for the coordination of animal/agriculture response efforts by incident management teams from Florida, North Carolina and Georgia. Dr. Brigid Elchos of Mississippi and Mr. Don Hamilton of Georgia recognized a need for southern states to collaborate in emergency preparedness efforts to help one another in future events, and instigated the development of an alliance based on the template provided from Midwestern friends in the Multi-States Partnership for Security in Agriculture.

Members of SAADRA represent state-level emergency managers who work in the offices of the state animal health official, state departments of agriculture, state emergency management and state educational institutions with animal agriculture components. The group does not receive funding and is managed on an interactive volunteer basis and led by Co-Chairs who help to maintain member communication concerning issues of interest to states regarding the safety and health of citizens, food systems, agriculture infrastructure, animals, and economy.

SAADRA projects to date have included the development and sharing of state guidelines and plans; joint initiatives for food and agriculture critical infrastructure protection; and participation in each another's state animal/agriculture exercises as players, evaluators and observers. An ongoing project is to develop and maintain state inventory lists of EMAC-able resources. SAADRA members adapted the FEMA 508-1 document to develop guidelines for Type I through Type III teams that can be useful in our states for animal/agriculture emergency response.

Whenever possible SAADRA is pleased to join forces with members of the other regional groups join forces to leverage each other's strengths and ideas.

SAADRA's founding member states are Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Texas. In recent years the group welcomed Arkansas, Virginia and West Virginia.

**NESAASA** - The New England States Animal Agricultural Security Alliance (NESAASA) is an interactive regional collaboration of the states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont. NESAASA's mission is to strengthen all-hazard response capabilities through alliances with the public, animal and animal agriculture industries, relevant private sector organizations, academia, and all levels of government.

NESAASA was organized as a result of a USDA-APHIS-VS supported regional Foot and Mouth Disease (FMD) exercise held in July 2008. The After Action Report generated from that exercise highlighted the need to develop regional capacity and capability and to embark on business continuity planning on behalf of New England's dairy industry. The ensuing NESAASA-development effort resulted in signature of the organization's Charter by the six New England Governors in July, 2010. The primary participants in the organization include the State Animal Health Officials (SAHO) of each member state and the area veterinarian in charge (AVIC) and Area Emergency Coordinator (AEC) for the USDA-APHIS-VS Region 1 office. Additionally, public and private stakeholders within any of the participating states as

identified by the respective state's governor, commissioner of agriculture, or emergency planning director or designee may be invited to participate in specific initiatives.

The overarching goal of NESAASA is to support and develop regional National Incident Management System (NIMS)-compliant standards, processes, and capacity through collaborative planning, preparedness, mitigation, response, and recovery efforts that help to ensure the safety, health and security of the regional food and animal and animal agriculture sector infrastructure and economy. NESAASA seeks to enhance New England regional animal and animal agriculture emergency preparedness and response to all hazards including chemical, biological, radiological and nuclear (CBRNE) incidents and natural disasters.

NESAASA's most intensive project to date has focused on clarifying regional fluid milk movement and processing variables, and on developing a regional continuity of operations plan for the New England dairy industry. This project includes the creation of a dairy farm readiness rating for use during a Foot and Mouth Disease (FMD) outbreak impacting the New England region. This tool can be utilized by state and federal animal health officials to facilitate the permitted intra- and interstate movement of fluid milk produced by farms located in a Control Zone that meet a minimum biosecurity score. NESAASA has utilized the expertise of a federally funded contractor for project implementation and has partnered with the National Center for Foreign Animal and Zoonotic Disease (FAZD) for data storage and password-protected access and manipulation. Research performed to date supports the fact that the economic losses associated with an FMD outbreak impacting New England can be minimized tremendously through regional border controls of milk movement rather than state controls of the same. The deliverables for the New England SMS project and supporting documents may be viewed by visiting the NESAASA website at <http://nesaasa.weebly.com>.

Other NESAASA priorities established in 2010 include the sharing of emergency management resources and information, the support of state and regional training and exercises and of EMAC deployment of agricultural and animal response resources, and the enhancement of crisis and risk communication. Project development to support these priorities is ongoing. NESAASA participants will be updating the organization's strategic plan during 2014 in order to ensure that its ongoing projects serve the region's animal agricultural industries in the best manner possible.

NESAASA participants recognize the importance of regional collaboration and are willing to share best management practices and lessons learned with other regional alliances to better serve agricultural industry constituents on a larger scale.

### **Response to the Explosion in West, Texas**

Amanda Bernhard, Texas Animal Health Commission

On April 17, 2013 fertilizer plant exploded in the town of West, Texas. Fourteen local responders were lost, a number of homes destroyed and citizens injured. The Texas Animal Health Commission will present animal issues encountered during the response, response procedures, lessons learned, as well as improvements to Texas' animal response resources. The full presentation is available on the Committee page at [www.usaha.org](http://www.usaha.org).

### **Carcass Disposal: GIS Toll for Pre-Identifying Burial Sites**

Priscilla Fitzmaurice, Centers for Epidemiology and Animal Health (CEAH), USDA-APHIS-VS

Proper disposal of animal carcasses during animal emergencies is an important consideration for both livestock production facilities and smaller producers. Natural disasters such as blizzards, floods, tornadoes, hurricanes, and the increased potential for human-caused agro-terrorism events often requires the timely burial of animal remains as a means of disposal. In addition, animal disease outbreaks may necessitate the burial of animals adjacent to livestock facilities if removal of animal mortalities outside of established quarantine zones is prohibited. As part of a proactive approach, emergency disposal plans should ideally identify potential burial locations well in advance of an animal emergency.

Because of its rural nature and the large number of livestock operations, Morgan County in northeastern Colorado was chosen for this initial site suitability study. Environmental Systems Research Institute's (ESRI) ArcGIS 10.1 software with Spatial Analyst extension was used in the analysis to ascertain potential burial locations and to assess the total suitable land acreage in Morgan County that would be appropriate for this method of carcass disposal. As a result, a burial suitability map identifying highly suitable, moderately suitable, and unsuitable areas for livestock burial was produced in addition to

a written methodology that can be readily applied by geospatial experts at the state or local levels to develop burial suitability maps for their areas of concern.

Criteria for the Morgan County suitability study were established by the Colorado Department of Agriculture (CDA) and the Colorado Department of Public Health and Environment (CDPHE). Excluded from burial consideration were areas that might adversely affect public or environmental health, would likely create trench excavation issues, or pose potential challenges to land reclamation. These included areas within a specified distance from rivers, streams, lakes, ponds; near any type of well; with steep topographic slopes; near residential or urban areas; within sight of roads and highways; or with unfavorable soils. It should be noted that individual criteria and setback distances are not static and will vary according to regulations or best practices for carcass burial designated by each county or state. Moreover, these parameters could change during the course of an emergency.

Datasets used in the analysis were obtained from various online data sources. All data are publicly available and were downloaded free of charge. Raster overlay and vector overlay methods were individually applied in the analysis and in developing the final burial suitability map. In preparing for state or local emergencies, either a raster- or a vector-based approach could be used by geospatial experts to create similar suitability maps. Choice of methodology would depend on individual preference.

Results of this suitability analysis indicate that more than half of the total acreage in Morgan County is considered unsuitable for the burial of livestock mortalities. If additional exclusionary criteria are considered such as burial on state lands or on private lands other than those of the affected owners, the suitable acreage available is substantially decreased. Moreover, many concentrated animal feeding operations are located close to the South Platte River which bisects the county from west to east and with the towns of Fort Morgan and Brush sited along this agricultural belt, suitable areas for carcass disposal are further restricted.

An on-site suitability assessment is in the planning phase for Morgan County to test the accuracy of these maps in the field. A similar site suitability map for adjacent Weld County will then be developed as parameters are further refined from the Morgan County field evaluation.

### **AgConnect – Strengthening Ag Preparedness**

Tammy Beckham, National Center for Foreign Animal and Zoonotic Disease Defense (FAZD)

Good data are critical to effectively understand, manage, treat, and respond to infectious diseases and enhance animal, human, and environmental health; however, accurate, meaningful data are often difficult to obtain and can be overwhelming to analyze. To help address this challenge, the FAZD Center has developed AgConnect, a suite of customizable data-sharing products designed to enhance real-time situational awareness for emerging, zoonotic, and/or transboundary animal diseases.

The AgConnect technology integrates authoritative information into a single, easy-to-use format that empowers real-time collection, distribution, and analysis of biosurveillance, veterinary diagnostic, emergency response, and business continuity data. The system is capable of integrating data from multiple sources, such as practitioner clinical observations (through iPad-based application); laboratory diagnostic test results (through linkages to state d-labs); animal production information (such as weight gain or water/feed consumption); third party data sets (e.g., Metafarms, USAHerds); and wildlife, geographical, and environmental/climate data. These data are integrated in to a common operational picture and synthesized in to a new product that is greater than the sum of any of the individual pieces to provide animal health officials with the information they need to monitor and respond to disease outbreak emergencies.

The end result is a sophisticated system that serves as a central point to monitor disease events, thus enabling efficient risk analysis and effective program design for disease intervention and control strategies. The FAZD Center is currently piloting the AgConnect suite of tools in four states to solicit feedback on requirements for use, visual displays, data integration, and other capabilities needed to support daily use by state animal health officials. By improving data collection capabilities and integrating information from multiple disparate sources, AgConnect provides a more comprehensive view of animal health over space and time to aid in early disease detection or monitor changes in animal health status, and thus promote more effective and efficient animal health emergency management.

### **Committee Business:**

One resolution was submitted by Committee members and it was adopted– National FMD Preparedness Working Group. The meeting was adjourned at approximately 1:15 p.m.

## **SECURE FOOD SUPPLY PLANS TO PROTECT ANIMAL AGRICULTURE AND THE FOOD SUPPLY IN A FOREIGN ANIMAL DISEASE OUTBREAK**

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Secure Food Supply Plans (SFS) are a new approach to emergency response. The SFS Plans are designed to provide business continuity for animal agriculture and associated industries in the face of a foreign animal disease (FAD) outbreak. These Plans are being developed by federal and state officials, livestock producers, animal disease experts, and other stakeholders with the assistance of academic partners.

The three overarching goals of a foreign animal disease (FAD) response are to detect, control and contain the FAD as quickly as possible; eradicate the FAD using strategies that seek to protect public health and stabilize animal agriculture, the food supply and the economy; and provide science- and risk-based approaches and systems to facilitate continuity of business for non-infected animals and non-contaminated animal products.

There are a number of enormous challenges for control of FADs in the U.S. Traditional response approaches rely on quarantine, stop movement and stamping out. Those approaches are simply not feasible in a large outbreak today because:

- There are larger concentrations of animals in production units
- Extensive movement of animals occurs both within states and between states
- There is a high probability that an FAD will spread between states prior to diagnosis
- There are not enough responders and equipment to depopulate premises with thousands of animals in a timely manner
- The environmental impact of disposal of thousands of animal carcasses must be considered
- The public will not accept mass destruction of animals
- Impacts on food security
- Animal welfare concerns

In addition, there is a wide diversity of animal agriculture production systems in the U.S. ranging from producers with a few animals to very large production units that rely on frequent movement of animals. For example, a production unit could have 5,000 dairy cows or 70,000 dairy calves. Some swine facilities have more than 20,000 sows. There may be 2.5 million laying hens in one location. These large production units rely heavily on movement of animals, animal products, and feed. There are more than a million swine in transit each day and 94,000 cattle sent to slaughter each day. Foreign animal disease emergency response plans must accommodate all sizes of production units and take into consideration the extensive movement of animals and products.

The overall goals of the Secure Food Supply Plans are to avoid interruptions in animal/animal product movement to commercial processing from farms with no evidence of infection during a foreign animal disease outbreak; provide a continuous supply of safe and wholesome food to consumers; and maintain business continuity for producers, transporters, and food processors through response planning.

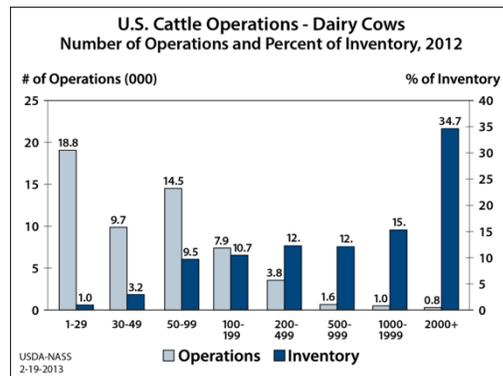
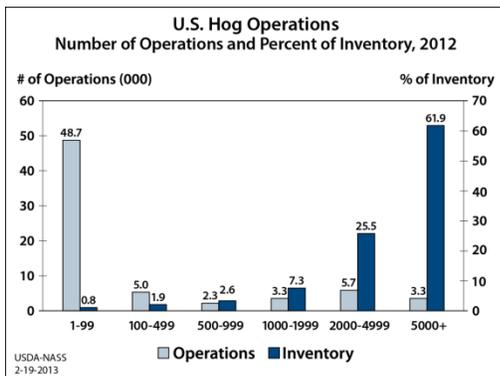
The Secure Food Supply Plans are based on current capabilities and will evolve as science, risk assessments and new capabilities develop. Each plan includes:

- Voluntary pre-outbreak preparedness components such as biosecurity and training on sample collection, and herd health monitoring
- Biosecurity, surveillance, epidemiology questionnaires, data management, movement permits
- Risk assessments (completed and in process)
- Non-binding guidelines: Final decisions will be made by responsible officials during the outbreak
- Outreach and training pre and post outbreak

Novel Approaches to FAD Response Proposed in Secure Food Supply Plans:

- Voluntary biosecurity practices implemented prior to an outbreak (and audited) will facilitate issuing movement permits during an outbreak.

- Herd health monitoring (Active Observational Surveillance (AOS)) by producers or employees should be a key early warning for FMD infection and a condition for receiving a movement permit.
- The plans for responding to a foot and mouth disease (FMD) outbreak change with the magnitude and duration of the outbreak.
- At the beginning of an FMD outbreak it is recommended that pigs in transit that originated from the Control Area be allowed to return to their premises of origin, or to proceed to their intended destination without stopping at state borders.
- At the beginning of an FMD outbreak it is recommended that all pigs at the packing plant, and on their way to the packing plant, which pass Food Safety and Inspection Service (FSIS) inspection be processed and allowed to enter the food chain.
- Milk from farms not known to be infected should be sent to processing if biosecurity performance standards are implemented and accepted by the incident commander.
- Stamping out should be discontinued and infected animals should be allowed to recover and return to productivity in a large regional or national FMD outbreak.
- Acceptable uses should be found for milk from FMD infected dairy herds in a large regional or national FMD outbreak.
- In an FMD outbreak involving a large portion of the U.S., the emergency response should transition to a long-term disease control program.
- Daily real time reverse transcription (RRT) polymerase chain reaction (PCR) testing of oropharyngeal swabs collected and submitted by the producer should be a key component for movement of eggs, turkeys, and broilers in an highly pathogenic avian influenza (HPAI) Control Area.



### I. Secure Egg Supply Plan

The Secure Egg Supply (SES) Plan promotes food security and animal health through continuity of market planning for a Highly Pathogenic Avian Influenza (HPAI) outbreak. This plan makes specific science- and risk- based recommendations that emergency decision makers (such as Incident Commanders) can use to rapidly decide whether to issue or deny permits for the movement of egg industry products during an HPAI outbreak. In addition, these recommendations effectively manage the risk of HPAI transmission to naïve premises. Through the integrated implementation of the SES Plan components, this plan provides a high degree of confidence that egg industry products moved into market channels do not contain HPAI virus. The SES Plan is based on current research and practice in fields including virology, flock husbandry, epidemiology, and risk-assessment.

### II. Secure Turkey Supply Plan

The goal of the Secure Turkey Supply Plan is to facilitate business continuity for the turkey industry during an outbreak of HPAI. The objective is to obtain permission from federal and state regulatory authorities to transport a) turkey eggs from a breeder farm to a hatchery; b) turkey poults from the hatchery to a brooder house; c) immature turkeys from a brooder house to a finishing house; and d) mature turkeys from a finishing house to a processing plant. The goal is to obtain movement permits for turkey eggs and live turkeys from non-infected premises within 48 hours after a Control Area has been established.

### **III. Secure Broiler Supply Plan**

The Secure Broiler Supply Plan (SBS) Plan provides guidance for moving hatching eggs and broiler industry products, within, out of, and into an HPAI Control Area. The SBS Plan includes surveillance guidelines (including diagnostics, mortality production parameters, and sampling), risk assessments, biosecurity measures, and permit guidance. Product-specific guidance is provided for hatching eggs, day-old chicks, broilers to market, and other broiler industry products.

#### **Response to Foot and Mouth Disease**

Secure Milk Supply Plan:

The goals of the Secure Milk Supply Plan are to avoid interruptions in raw milk movement from dairy farms (with no evidence of infection) in an FMD Control Area to commercial processing; provide a continuous supply of wholesome milk and milk products to consumers; and maintain business continuity for dairy producers, haulers, and processors. Because of regional differences in production and processing practices, the SMS is being developed at both national and regional levels.

#### **Response to Multiple FADS**

Secure Pork Supply Plan:

The Secure Pork Supply (SPS) Plan addresses four FADs including FMD, classical swine fever, African swine fever, and swine vesicular disease. The goal of the SPS Plan is to develop procedures that pork producers, processors, and Federal and State agencies all agree are feasible to allow for the safe movement of animals from farms in an FAD control area to harvest channels or other production sites as long as they have no evidence of disease.

Additional Resources:

[www.cfsph.iastate.edu/Secure-Food-Supply/](http://www.cfsph.iastate.edu/Secure-Food-Supply/)

[secureeggssupply.com](http://secureeggssupply.com)

[securemilksupply.org](http://securemilksupply.org)

[securepork.org](http://securepork.org)

[securebroilersupply.com](http://securebroilersupply.com)

USDA Foreign Animal Disease Preparedness and Response Plans (FAD PReP):

[www.aphis.usda.gov/animal\\_health/emergency\\_management/materials\\_ref.shtml](http://www.aphis.usda.gov/animal_health/emergency_management/materials_ref.shtml)

Decision Support Tools:

Classification of Phases and Types of an FMD Outbreak and Response are designed to facilitate development of adaptable response and business continuity plans:

<http://www.cfsph.iastate.edu/pdf/phases-and-types-of-an-fmd-outbreak>

Herd Health Monitoring (Active Observational Surveillance) Training Materials formalizes the daily observation of clinical signs on farm to increase the likelihood of detecting FMD:

[http://securemilksupply.org/Assets/SMS\\_active-observational-surveillance.pdf](http://securemilksupply.org/Assets/SMS_active-observational-surveillance.pdf)

#### **Acknowledgements:**

Funding provided by: USDA-APHIS National Preparedness and Incident Coordination

Academic Partners: University of California, Davis; University of Minnesota; Iowa State University