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The committee met on October 4th, 2011 at the Adam's Mark Hotel in Buffalo, New York, from 8:00 a.m. to 6:45 p.m. There were 154 members and guests present. Dr. Paul Gibbs welcomed the committee and guests and reviewed last year's committee agenda.

Time-Specific Papers

Dr. Juan Lubroth, Chief Veterinary Officer of the Food and Agricultural Organization, Rome, Italy presented a time-specific paper on the Prospects for Eradication of FMD. The paper in its entirety is included at the end of this report.

Presentations

Section I: Special Focus: Foot and Mouth Disease and Vaccination

1) **"Responding to Foot and Mouth Disease: The Changing Landscape"** by Dr. John Clifford, Deputy Administrator, USDA APHIS

   Dr Clifford remarked that the agricultural landscape is vastly different than 82 years ago, when the last case of FMD was detected in 1929. Concentrated livestock operations may increase the risk of rapid disease spread and the mobility of animals, animal products and human traffic from endemic FMD areas has increased dramatically. The consequences of an FMD outbreak make this as much an economic disease as it is an infectious disease. Export markets for all animal commodities would close for an indeterminate time and we would suffer commodity price reductions. Traditional stamping out and disposal regulations can no longer be achieved because the current livestock herd numbers can be in thousands. These measures focus exclusively on stamping out without the use of vaccine. APHIS' plans for responding to an outbreak consider the use of animal-sparing modalities such as vaccination early in process. Depopulation and disposal must be minimized to conserve resources, protect the environment and ensure domestic food requirements are met. To respond to an FMD outbreak, APHIS has developed the Foreign Animal Disease Preparedness and Response Plans (FAD PReP). FAD PReP is a suite documents with guidelines, plans and standard operating procedures for disease response. These documents provide the framework for APHIS' preparedness and response. APHIS has also prepared the National Animal Health Emergency Management System (NAHEMS) guidelines on specific response activities. Modern challenges require a new approach for responding to an outbreak such as FMD, APHIS will need to consider all available options and use multiply strategies to address an outbreak. We must take a balanced approach to disease containment by establishing a nationally accepted continuity of business programs well in advance of the outbreak to ensure an uninterrupted food supply and sustain commerce

2) **"Foot-and-Mouth Disease Vaccines: Past, Present and Future"** by Dr. Luis Rodriguez, Research Leader, Plum Island Animal Disease Center, USDA ARS

   This presentation provided a brief history of FMD vaccine production and a look into the future FMD vaccines with a goal towards eradication of FMD virus. A description of the current FMD vaccine production processes was provided. BEI inactivated vaccines can take up to 6 months to produce. BEI inactivated vaccine production requires cell adaptation and subsequent inactivation steps. Emergency use vaccines are prepared to twice the potency of routine vaccines. Typical onset of protection from current inactivated vaccines is between 7-10 days post immunization. Immunity is short-lived (< 6 months) and it is difficult to differentiate vaccinated vs. infected animals. The ideal vaccine would have the following characteristics: 1) provide effective, rapid and long lasting immunity, 2) prevent viral transmission, 3) allow for differentiation of vaccinated vs. infected animals, 4) prevent carrier state, 5) provide protection against multiple serotypes and 6) be stable with a long shelf life. There are effective subunit vaccines that have been tested in livestock. The newly developed adenovirus vaccine (by Dr. Marvin Grubman), can be manufactured in the US, is DIVA capable, and provides immunity within 7-14 days post vaccination. New research is currently underway on FMD vaccines that are attenuated and will likely provide long term immunity. There is a need for vaccines that are inexpensive to produce, easy to deliver and induce long-term immunity. Also there is need for better integrated strategies that fit the specific needs of endemic regions. Only when these critical components are available will the global eradication of FMDV be possible.

3) **Industry Perspectives on Foot-and-Mouth Disease Vaccines**

   a. **"Merial and Foot- and- Mouth Disease Vaccines"** by Dr Francis Milward, Senior Director Biological R&D

Dr Milward reported that Merial is an innovation-driven leader in the delivery of Animal Health products and solutions. Merial has a global presence with 5,600 employees, 9 Research Centers and 16 Production Facilities. The origin of Merial's vaccine business goes back to the very beginning of the history of Foot and Mouth Disease vaccines (the Waldman method) and has evolved with every generation of technology (Frenkel, Cell line derived purified) since. The great majority of vaccines used world-wide are derived from inactivated virulent Foot and Mouth Disease Virus. Depending on the region, they are used for systematic vaccination of livestock, vaccine banks and emergency use to control outbreaks. The next frontier is the availability of recombinant vaccines that do not require the handling of the Foot and Mouth Disease virus (low-biosecurity vaccines). While many technologies have been tried to date the reduction to commercial availability has been very limited. A new generation of technologies is showing promise. We will show an example using the Adenovirus expression system from Genvec, developed in collaboration with the United States Department of Agriculture and the department of Homeland Security. A clear understanding of the desired product definition and the expectation of future needs for Foot and Mouth Disease vaccines in the United States will be critical for their successful development and importantly industrial availability when needed.

b. **"Key Aspects for a Successful Control of FMD by Vaccination"** by Drs. Eliana Smitsaart, Ana María Espinoza, and Rodolfo Bellinzoni
BIOGENESIS-BAGO S.A, Argentina

Dr Smitsaart reported that foot and mouth disease (FMD) is a highly infectious viral disease that affects food producing animals such as cattle, pigs and sheep.The rapid spread of the disease constitutes a continued threat for the economy of meat exporting countries. After the UK 2001 epidemics in which large numbers of animals were slaughtered, there is a growing awareness of the benefits of using vaccination as a major tool, in conjunction with other measures to contain outbreaks. Current FMD vaccines follow essentially classical steps of antigen production and formulation with appropriate adjuvants. The inclusion of purification steps alongside compliance with GMP standards enables the production of a consistent and well characterized high-quality product.
In addition, availability of high quality antigens allows the conservation of strategic reserves to be formulated into vaccine in case of an emergency. Potency, safety and purity regarding removal of nonstructural proteins (DIVA capability) are essential attributes that are assured by the manufacturer and verified by official external controls in South America. These elements guarantee consistencies in the quality of the product available for vaccination campaigns or in an emergency context. The control of FMD in Argentina and Uruguay, in 2000- 2001 demonstrated the effectiveness of vaccination.

c. **"Preparedness for emergency vaccination against Foot and Mouth disease (FMD)"** by Dr. Mike Bolton, Technical Service Specialist, Merck, Inc.

Dr Bolton outlined that Merck has FMD vaccine manufacturing facilities in Brazil, India and Germany. The OIE/FAO World Reference Laboratory (WRL) in Pirbright, UK, monitors the global situation. Based on the epidemiological situation WRL publishes a priority list for FMD strains in vaccine / antigen banks. Merck is in close contact with WRL and exchanges information and samples on the FMD vaccine strains with WRL. Matching between vaccine strains and field strains is done through a serological test, based on post-vaccination sera and the field isolates, which results in an r-value. Protection against a virus depends on a combination of the r-value and the potency of the vaccine. The trend in r-values is more important than an individual value.

4) "Some Considerations for the Development of a FMD Vaccination Plan" by Dr. Pam Hullinger Associate Clinical Professor, UC Davis, College of Veterinary Medicine and Dr Annette Whiteford, State Veterinarian & Director - Animal Health and Food Safety Services, California**.**

The presentation provided an overview of considerations for the development of a FMD vaccination strategy and the successful execution of that plan. Lessons learned from a recent California field level operational exercise focused on delivery of FMD vaccine to the dairy industry were highlighted. There are many factors and considerations to be taken into account when selecting a response strategy in the face of an FMD epidemic. While each event will be unique in location, species and industries impacted and the manner in which it unfolds, 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 more timely decisions in a real event. There are several key areas where more information and preplanning can have significant impacts. The two highlighted in this presentation are first having a better understanding of the impacts on markets and commerce, both domestic and foreign. While both are important, we have more control over our domestic markets and interstate commerce and need to discuss openly what states or industries thoughts and expectations are in regards to enabling "continuity of business" for those unaffected premises in proximity to known areas of infection. Second, we need a better understanding of US consumer acceptance of products from FMD vaccinated animals. While we can all acknowledge that these products are completely safe and healthy, we need to understand if there may be consumer concerns and if so, how to best manage or mitigate them through preplanned messaging.

5) **"Pork Industry Perspective of FMD Vaccination"** by Dr. Patrick Webb, Director of Swine Health Programs, National Pork Checkoff Board, Des Moisnes, Iowa

Dr Webb considered that vaccination is a tool that should be used in an outbreak depending on the scope of the outbreak. Determining the scope of the outbreak will be essential and require speed and the ability to have premise and tracing capabilities. Epidemiologic information will help make decisions for vaccination. Once an outbreak occurs, there will be a need to determine which species are vaccinated, how many doses are needed and the frequency of administration. In order to have adequate administration, swine veterinarians and industry partners will need to be involved. There is a need to understand how vaccination will affect interstate commerce and consumer acceptance of products.

6) **"Cattle Industry Perspective of FMD Vaccination"** by Dr. Elizabeth Parker, Chief Veterinarian, National Cattlemen's Beef Association

Dr Parker pointed out that the end goal for vaccination is rapid control and eradication. The country needs a vaccination plan that provides an effective, reputable, thorough, traceable, and auditable vaccination for proof for domestic and international trade. While there have been recent forward strides regarding FMD vaccines, we still need a DIVA vaccine that allows for an effective "vaccinate to live" or "vaccinate to slaughter" policy without jeopardizing trade and potential silent carriers. The logistics of vaccine receipt, staging, storage & distribution of vaccine are a challenge. We will need to balance available manpower with minimum amount of people due to biosecurity concerns while ensuring a rapid deployment and administration of vaccine. Additional logistical issues beyond administration include: ensuring we have adequate paper trail, identification of vaccinated animals, resource needs for effective vaccine delivery & distribution, producers with multi-species on their operation and diversity of the cattle industry.

7) **"Wildlife and Foot and Mouth Disease"** by Dr. Jack Rhyan, APHIS, USDA

Dr Paul Gibbs presented the report for Dr Rhyan. The only known occurrence of foot-and-mouth disease in wildlife in the United States occurred in 1924 when the infection was transmitted from cattle to mule deer (*Odocoileus hemionus*) sharing common pasture. In an experimental infection in the 1970's, white-tailed deer (*Odocoileus virginianus*) were susceptible to infection and capable transmitters of the virus to cattle. More recent studies in North American bison (*Bison bison*), elk (*Cervus elaphus nelsoni*), pronghorn (*Antilocapra americana*), and mule deer have been

conducted. Results of these studies indicate the susceptibility and transmission capability of three of the four wild ungulate species examined. Additionally, the severity of lesions in pronghorn and mule deer suggests that in a natural outbreak, mortality could be high. Results also indicate some resistance of elk to transmission and severe clinical signs when infected withFMD type O1 Manisa. A separate study recently conducted by investigators from PIADC and APHIS-Wildlife Services evaluating FMD in feral swine found results and lesions of the disease to be similar to those in domestic pigs. Further studies to develop and evaluate vaccination strategies and vaccines for use in wildlife are needed.

8) **"Prospects for Eradication of Foot and Mouth Disease"** by Drs. Juan Lubroth, Peter de Leeuw, Giancarlo Ferrari, Keith Sumption, Julio Pinto, FAO Animal Health Service, Rome, Italy

Dr Lubroth, Chief Veterinary Officer, Food and Agricultural Organization, reported that over 120 countries are affected by FMD. Efforts for the prevention and elimination of FMD from the livestock sector are too often thwarted from re-incursions of one of several viruses belonging to the FMD complex. The term eradication is misguided when when wildlife populations harbor the virus and share agro-ecological systems with livestock production. The approach proposed by the FAO (and recently endorsed by the OIE and several regional organizations with an interest in curbing the negative impact of FMD on trade, people's livelihoods and food security) is based on risk management and the identification of critical control points along the livestock production and marketing chains. The institution of repeated surveillance, data analysis, and targeted efforts to apply technical tools (vaccine matching to circulating viruses, field studies to elucidate virus circulation in the absence of frank disease, capacity building in contingency planning and emergency response) along with socio-economic analysis, partnerships with the private sector, and sustainable financial and technical support are key components for FAO. The FMD Progressive Control Pathway encompasses a series of stages (0 to 6), each with an increasing capacity to understand how FMD virus(es) circulate, proper use of available tools, disease management and expected responses. Towards the end of PCP, countries qualify for international recognition by the OIE as FMD-free with vaccination and eventually free from FMD. Regional approaches are considered essential for national success and thus FAO and its partners have held several annual regional meetings to review efforts for FMD elimination from targeted livestock sectors.

Section II: Federal, State and Academic Updates:

9) **DHS Update** by Dr. Michelle Colby, Branch Chief, Agricultural Defense Branch, Chemical and Biological Defense Division, DHS S&T Directorate

This presentation provided an update on recent activities within the Department of Homeland Security's Science and Technology Directorate related to foreign animal disease (FAD) countermeasures. This included progress reports on the development of the adenovirus vectored Foot and Mouth Disease (FMD) vaccine and the Agricultural Screening Tools project.

10) **NVSL Update** by Dr. Beth Lautner, Director, National Veterinary Services Laboratories, USDA APHIS.

This presentation provided an update of activities within the National Veterinary Services Laboratories at Ames, Iowa. The NVSL priorities for fiscal year 2011 were reviewed. These priorities included:

- Increasing Science Focus
- Expanding ISO accreditation to proficiency panels and reference materials
- Optimizing and Utilizing LIMS
- Maintaining and Expanding Domestic Reference Laboratory Role
- Maintaining and Expanding International Reference Laboratory Role
- Positioning NVSL for 2015

- Leading Laboratory Networks
- Improving Workplace Environment
- Supporting the NBAF Design and Transition
- Improving Emergency Preparedness. The NAHLN strategic planning initiative was reviewed along with the concept paper and survey results.

11) FADDL Update by Dr. Fernando Torres-Velez. Section Head, Diagnostic Services Section, Foreign Animal Disease Diagnostic Laboratory, NVSL, USDA APHIS, Plum Island animal Disease Center

The "State of FADDL" was reviewed in this presentation. The domestic accessions and surveillance activities performed during the past year was reviewed. FADDL has been active in producing proficiency panels and performed negative cohort studies for FMD, Rinderpest and ASF. Current and future diagnostic development and validation projects were provided. FADDL has been very active in international projects to include work in Haiti, Ecuador, Mongolia and the Dominican Republic. The future direction of FADDL will involve strengthening the diagnostic capacity, establishing OIE reference laboratory status for FMD, continue to grow international collaborations and continued support for the NAHLN.

12) USDA/ARS Update by Dr. Luis Rodriguez, Research Leader, Foreign Animal Disease Research Unit, USDA/ARS, Plum Island Animal Disease Center

A review of the current financial status and CRIS projects for ARS was provided to the committee. During 2012-2017 the projects include: Intervention Strategies to Support the Global Control and Eradication of FMD, Countermeasures to Control Foreign Animal Diseases of Swine: CSF/ASF, and Ecology and pathogenesis of Re-Emerging Vesicular Stomatitis virus in North America. An overview of African SwineFever and Classical Swine Fever and the current research gaps was provided.

13) CEEZAD Update by Dr. Igor Morozov, Science Project Manager, CEEZAD, Kansas State University

Dr Morozov explained that CEEZAD is a component of the Zoonotic and Animal Disease Center supported by the Department of Homeland Security (DHS) and was founded in 2010. An overview of the research and education programs was provided to the committee. CEEZAD performs work in three areas, vaccines, detection, epidemiology and education and outreach. Current vaccines in development are recombinant/MLV vaccines for Rift Valley Fever and Influenza. Work in pathogen detection includes development of a multiplexed assay that includes 15 targets. Epidemiological studies are underway in various regions to ascertain risk level and exposure to Rift Valley Fever. The State of Kansas has provided matching funds to allow for additional projects within each theme.

14) FAZD Update by Dr. Tammy Beckham, Director, Department of Homeland Security Foreign Animal and Zoonotic Disease Defense Center

Highlights from the previous year's work within the FAZD Center was provided to the committee. Highlights included 1) two agricultural screening tools workshops in collaboration with the Science and Technology directorate of DHS , USDA, and the livestock industries; 2) information analysis tools to support business continuity planning and emergency response; 3) development and pilot of the NAHLN capacity software model;4) continued development and testing of a deletion NSm MP-12 RVF vaccine candidate; 5) development of monoclonal antibodies to FMD for use in DIVA assay in collaboration with Plum Island and an industry partner; and 6) continued expansion of the career development programs.

15) **NAHLN Update** by Dr. Sarah Tomlinson, Associate Coordinator, National Animal Health Laboratory Network (NAHLN), Fort Collins, Colorado

Dr Tomlinson reported that APHIS partners with veterinary diagnostic laboratories throughout the United States to ensure there is adequate diagnostic capacity and capability for early detection of, rapid response to, and recovery from, animal health emergencies. This includes emerging diseases and FAD agents that threaten the Nation's food supply and public health. NAHLN is comprised of 55 State/university laboratories and four Federal laboratories including: the Department of Interior (DOI) laboratory in Madison, Wisconsin; the USDA, Food Safety and Inspection Service (FSIS) laboratory in Athens, Georgia; and the National Veterinary Services Laboratories (NVSL) in Ames, IA and Plum Island, NY locations, for a total of 59 laboratories in 43 States. NVSL serves and the national reference laboratory for the NAHLN. NAHLN has been involved in multiple preparedness activities in 2011 including: completing the FMD exercise series; developing of a secure communication platform with stakeholders using CoreShield; collaborating with FAZD to develop a laboratory capacity estimation model; and participating in FAZDs Agricultural Screening Tools workshops. Additionally, NAHLN provided multiple Quality Assurance trainings, including delivery to PPQ and international participants; and is developing QA distance training modules. NAHLN continues to be involved in diagnostic development activities such as: completion of negative cohort studies for FMD, ASF and RP; collaborating with FADDL and FAZD on the evaluation of a FMD lateral flow device and additional partners on the optimization of techniques for an FMD milk assay. Further, stakeholders have participated in NAHLN strategic-planning by providing input on network structure options.

Session III: Contributed Papers

16) **Global Eradication of Rinderpest, what's next?** by Dr William Taylor, FAO Technical Expert, Rome, Italy

Dr Taylor explained that the global eradication of rinderpest as opposed to simply controlling disease, produced a better return on investment costs. Now that we understand that current vaccine-driven technology can lead to such an event, we should look for fresh diseases in which to make similar investments. At a technical level we should be looking for diseases with straightforward epidemiological profiles and with simple immunological host responses. Peste des petits ruminants (PPR) can be taken as a case in point. The disease is easily recognized clinically and has a defined global distribution within which the virus only affects sheep, goats and camels. Wildlife reservoirs do not exist. Live attenuated vaccines conferring a durable immunity have been developed and in endemically infected countries, vaccination is the control approached normally taken. It is proposed that by increasing the level of vaccine uptake to saturation point, eradication would be achieved. Estimations of the global requirements of vaccine compared to the availability of vaccinators suggest that the "choke point" at present relates more to vaccine production than manpower. Finally, a draft time-bound scheme is proposed whereby improved vaccine output could lead to a possible reduction or even eradication of the virus through two rounds of mass vaccination with the further possibility of focused intensive vaccination of residual pockets of infection. This would have to be accomplished within a suitably coordinated geopolitical framework.

17) **USDA-DOD Collaborative Engagement to Prevent and Mitigate threats from Especially dangerous pathogens** by Dr. Ned Cardenas, Animal HealthTechnical Advisor, Foreign Agricultural Service, Washington, DC.

Dr Cardenas explained that in this time of diminishing budgets and increasing deficits, governments must be creative in achieving their mission with limited resources. The United

States Department of Agriculture (USDA) needs to increase collaboration with other government institutions to reach mutual goals. The overall mission of the USDA is to protect and promote U.S. food, agriculture, natural resources and related issues. To achieve this mission, USDA maintains a skilled workforce in the area of infectious animal diseases from which to draw technical expertise to support the President's National Strategy for Countering Biological Threats. USDA partners with other U.S. institutions and departments (USAID, Department of State, Department of Defense, etc.) to engage national veterinary services in program countries on training, cooperative biological research, threat agent detection and response activities. There are many animal diseases that cross borders and pose risks to the health and value of U.S. agriculture. USDA mitigates some of these risks by collaborating in research and engaging in capacity building activities internationally. There are three USDA agencies actively involved in these programs. These are the Animal and Plant Health Inspection Service (APHIS), the Agriculture Research Service (ARS) and the Foreign Agriculture Service (FAS). These agencies represent USDA's main capacities for research (ARS), animal and plant health regulatory authority (APHIS) and international diplomacy (FAS) related to animal diseases. Examples of activities that have been implemented or are in planning stages are Scientific Exchanges, Embassy Science Fellows, In-country post graduate scholarships, Collaborative Research, In-country and U.S.-based short courses on Transboundry Animal Diseases, Biosafety and Biosecurity, Laboratory Diagnostics and Quality Management, Basic and Advanced Veterinary Epidemiology and Risk Analysis.

18) **FMD Vaccinate to Live: "What's the Problem?"** by Dr. Dorothy Geale, Senior Staff Veterinarian, Canadian Food Inspection Agency

The FMD Chapter in the OIE Terrestrial Animal Health Code presents a significant disincentive to adopt vaccinate-to-live strategies in countries classified as *FMD free where vaccination is not practised*. The Code differentiates between eligibility to return to the previous status as 3 months when vaccinates are slaughtered (vaccinate-to-die) compared to 6 months where vaccinate-to-live policies are applied. This doubling of the period of trade restriction is a considerable economic barrier. To this end in April 2011, the QUAD (Australia, Canada, New Zealand and the United States) Chief Veterinary Officers tasked a project to explore the scientific rationale that could support a proposal that the period for return to a previous status following an outbreak where stamping-out is applied should be 3 months, irrespective of whether vaccinate-to-live or vaccinate-to-die policies are applied. The project is designed to examine the premise that with appropriate response measures, particularly the use of high quality emergency vaccines and enhanced surveillance, along with strict movement control, animal identification and traceability among others, a vaccinate-to-live versus a vaccinate-to-die policy in countries or zones classified as *FMD free where vaccination is not practised* (i.e. not practiced when FMDV is not present in the country) can be considered equivalent in terms of risk to animal health and should therefore have identical periods of exclusion from international trade.
Timelines and deliverables of the project include a scientific review of pertinent literature, formulation of a position to support concurrence of times for return to trade and if warranted development of proposed text for submission to the OIE Code Commission in September 2012. The OIE/FAO World Reference laboratory for FMD at Pirbright, UK and the EUFMD Commission are collaborating in the project.

19) **Hemispheric Program for the Eradication of FMD (PHEFA)** by Dr. John Shaw reported for Dr Sharon Williams, USDA, APHIS International Services, Rio de Janeiro, Brazil.

Dr Williams reported that the major progress has been made in eradicating FMD from South America. Stubborn pockets of endemicity remain, notably in Ecuador and Venezuela. Until the recent confirmation of FMD in Paraguay, 85% of South America's cattle resided in areas free of disease with or without vaccination. This overall success has led to a hemispheric program for the eradication of FMD with a target of eradication being achieved by 2020. PANAFTOSA (Pan American FMD Center) has been charged with leading the effort. The program is explicit that different zones in South America are at different places with different risks. As an example, the

activities needed to bring Ecuador from being an endemic country to one free with vaccination are different from those needed to move Argentina from free with to free without vaccination. Dr Williams concluded by drawing attention to the significant financial constraints on the continent. However, the scientific know-how is available to eradicate FMD from the Americas and the globe. It's almost down to a clean up job now in South America, with predominately Type O virus circulating in a limited number of nidi. At least, in theory, there is no technical reason we should not be able to eradicate this disease.

20) **Emergency Response Support System** by Dr. Jim Wall, Director, Computing and Information technology for the Texas Center for Applied technology

Dr. Jim Wall provided an overview of a dashboard technology currently being developed for NCAHEM and emergency response. Dr. Wall reviewed developments to date and capabilities of the technology. Applications to date for this technology include the development of the emergency response support system, the NAHLN capacity software estimator and the Biosurveillance field entry system.

21) **Recent Outbreaks of FMD in Japan** by Dr. Ruri Ushijima, Post-doctoral Associate, University of Miyazaki, Japan

Dr Ushijima reported that on March 25, 2000, the first case of foot-and-mouth disease (FMD) in Japan in 92 years was diagnosed in Miyazaki Prefecture. By May 11 three other infected herds were identified by surveillance at local and national levels. A serotype O strain was the cause of the epidemic, and investigations suggested that the first case could have been linked to use for feed and bedding of imported wheat straw from China, but this was never confirmed. Containment, control, eradication using stamping-out without vaccination, was achieved on May 18. The 2000 outbreak resulted in destruction of 740 cattle within 4 infected herds. The estimated cost to the government and economy was approximately 100 million US dollars. Late April and extending through July of 2010, Japan experienced another FMD epidemic caused by the serotype O strain and located 75 kilometers north of the 2000 FMD outbreak. The first case was found April 20 at a small cattle breeding farm within Miyazaki prefecture, and all 292 cases were detected within the prefecture by July 4. More than ten farms had already been infected by the time the first case was detected. A rapid increase in cases in early May triggered use of an emergency 'vaccination-to-kill' policy. Altogether, 125,668 animals were vaccinated (Merial, Aphtopor®/O1-Manisa) between May 22 and May 30. All suspected and vaccinated animals were destroyed by June 30.

Clinical signs in cattle were fever (88%), foamy salivation (95%) and vesicular/erosive /ulcerative lesions on the tongue (86%), gingiva (91%) and internal nares (72%), whereas those of pigs were: fever (80%), vesicular and erosive lesions on the feet (93%) and the nose (94%) and lameness (52%). High mortality of newborn piglets was observed in 7% of affected pig farms. No evidence of virus (PCR) or antibodies (ELISA) was found for samples from 79 wild animals. Although the source of FMD infection of the outbreak has not been identified, partial sequencing by FMD World Reference Lab of the outbreak strain of the virus (O/JPN/2010) suggests that it is closely related to viruses occurring recently in the P.R. China, Hong Kong SAR, Republic of Korea, Myanmar and Thailand. Immediate losses included destruction of 288,643 animals in 292 herds (196 cattle, 82 swine, 13 mixed and 1 goat) and a long term cost of $3 billion (US) projected over the next 5 years. These epidemics highlight Japan's vulnerable location for acquiring FMD from neighboring countries where FMD is endemic.

22) Classical Swine Fever in the Caribbean by Dr. John Shaw, USDA, APHIS

Classical Swine Fever is a disease which still affects two of the Greater Antilles (Cuba, and Haiti and the Dominican Republic [Hispaniola]). The histories of these diseases and indeed their virus lineages are quite different. The three countries face many challenges in their efforts to control and eradicate this disease, and each case is different due to the different roles government and the private sectors play. International cooperation has been key to some aspects of these programs. New technology in the form of conventional PCR is being implemented successfully in some programs but not in others. Many distinct challenges remain and APHIS continues to assess the risk to insular and mainland US.

Committee Business

The Committee reviewed and passed one resolution, titled Funding for Defense of the United States Agriculture and Food.