SYMPOSIA AND ORAL SESSIONS

Animal Health: Emerging Foreign Animal and Zoonotic Diseases

272 Potential threat of foreign animal diseases to US agriculture. T. Beckham*, *Texas Veterinary Medical Diagnostic Laboratory, Texas A&M University System, College Station*.

Homeland Security Presidential Directive 9 designated agriculture as a US critical infrastructure. Protection of the agricultural industries is critical to protecting the nation's economy. Agriculture in the United States contributes approximately one-trillion/year towards the gross domestic product. Furthermore, fifteen percent of Americans are employed in food production and US agricultural industries export approximately 50 billion dollars worth of products annually. The US agricultural and livestock industries today face very real threats from foreign, emerging and/or zoonotic diseases. In particular, the past decade and more specifically the past year alone has demonstrated that the numbers of new and emerging diseases affecting our industries are on the rise. For example, new serotypes of Bluetongue virus continue to move through the European communities and Ebola virus was recently isolated from an atypical host (swine) in the Phillipines. While many of these examples do not originate in the United States, the disease threats that face our industries are still large. These threats stem in part from the globalization of commerce, the consolidation of our industries into larger commercial units and the interactions between humans, livestock and wildlife. Protection of our livestock industry will require state-of-the art diagnostic tools that enable us to conduct broad-level surveillance. This surveillance effort will be largely conducted in our state-veterinary diagnostic laboratories and will be a coordinated effort between veterinarians (our first line responders), state animal health authorities and the federal government.

Key Words: foreign animal disease, agricultural threats, national security

273 Preventing and detecting foreign animal diseases. T. McKenna*, *Wisconsin Veterinary Diagnostic Laboratory, Madison*.

The threat of a foreign animal disease introduction into the United States is very real. What can be done to prevent an introduction, and what is the role of detection in controlling an outbreak? We all have a part to play in the prevention of foreign animal disease introduction. Biosecurity on the farm and at the borders is paramount. Being able to identify an introduction early is crucial to limiting the impact of a foreign animal disease. Current diagnostic tools and surveillance approaches will be described.

Key Words: foreign animal disease, diagnosis, prevention

274 Responding to a foreign animal disease incident. M. Cochran*, *Texas Animal Health Commission, Austin*.

The devastating economic and animal health impacts of foreign animal diseases mandate an efficient response by animal health authorities, requiring the simultaneous coordination of local and national resources. The Incident Command System, well-tested in emergency responses of all types, allows for quick establishment of a chain of command and expansion as necessary for response to the foreign animal disease. Foreign animal disease investigations often start when a veterinarian or producer discovers a suspicious lesion or other symptoms in an animal or a herd. After this incident is reported to state or federal animal health authorities, a foreign animal disease diagnostician, a veterinarian trained in disease identification and specimen collection techniques, is dispatched to the premises in question. Careful laboratory analysis is required before confirmation is reported to the animal health authorities. Already on alert, animal health authorities quickly establish an incident command post in proximity to the first detected case. The incident commander and his or her team then work to determine the scope of the outbreak and establish quarantines and issue stop-movement orders as the situation requires. The approximate scope of the foreign animal disease outbreak will translate into establishment of an infected zone and a buffer surveillance zone around the infected zone. Coordination and control, coupled with cooperation at the local level, help minimize the spread of the disease. The end goal of a foreign animal disease response is disease eradication. With this goal in mind, laboratory diagnostics, strict biosecurity controls in both specimen collection and animal movement, analysis of the disease agent and environmental conditions, and selective culling of animals are required to eradicate a foreign animal disease with the least negative impact on animal health and production.

Key Words: animal health, incident command center, quarantine zones

Breeding and Genetics: Genomic Evaluation

275 Opportunities for genomic delection with redesign of breeding programs. J. C. M. Dekkers*[1], H. H. Zhao[2], D. Habier[3], and R. L. Fernando[1], [1]*Iowa State University, Ames*, [2]*Pioneer Hi-Bred Int., Johnston, IA*, [3]*Christian-Albrechts University of Kiel, Kiel, Germany*.

Genomic Selection (GS) using EBV from dense marker data is promising for genetic improvement but may require a complete redesign of breeding programs. Our objective was to develop and compare GS programs that capitalize on opportunities to reduce generation intervals and program sizes using layer chickens as an example. Assuming GS allows a reduction in generation intervals from 1 y to 6 mo, our goal was to develop a GS program that nearly doubles response but with a similar rate of inbreeding per y. Comparison was to a standard program with selection of the top 60 and 360 out of 1000 males and 3000 females based on BLUP EBV for a sex-limited trait with heritability 0.3. Using analytical predictions by selection index, a GS program with selection of the top 50 males and females out of 250 candidates per sex based on GS EBV was predicted to achieve this goal. These standard and GS programs were then evaluated by stochastic simula-