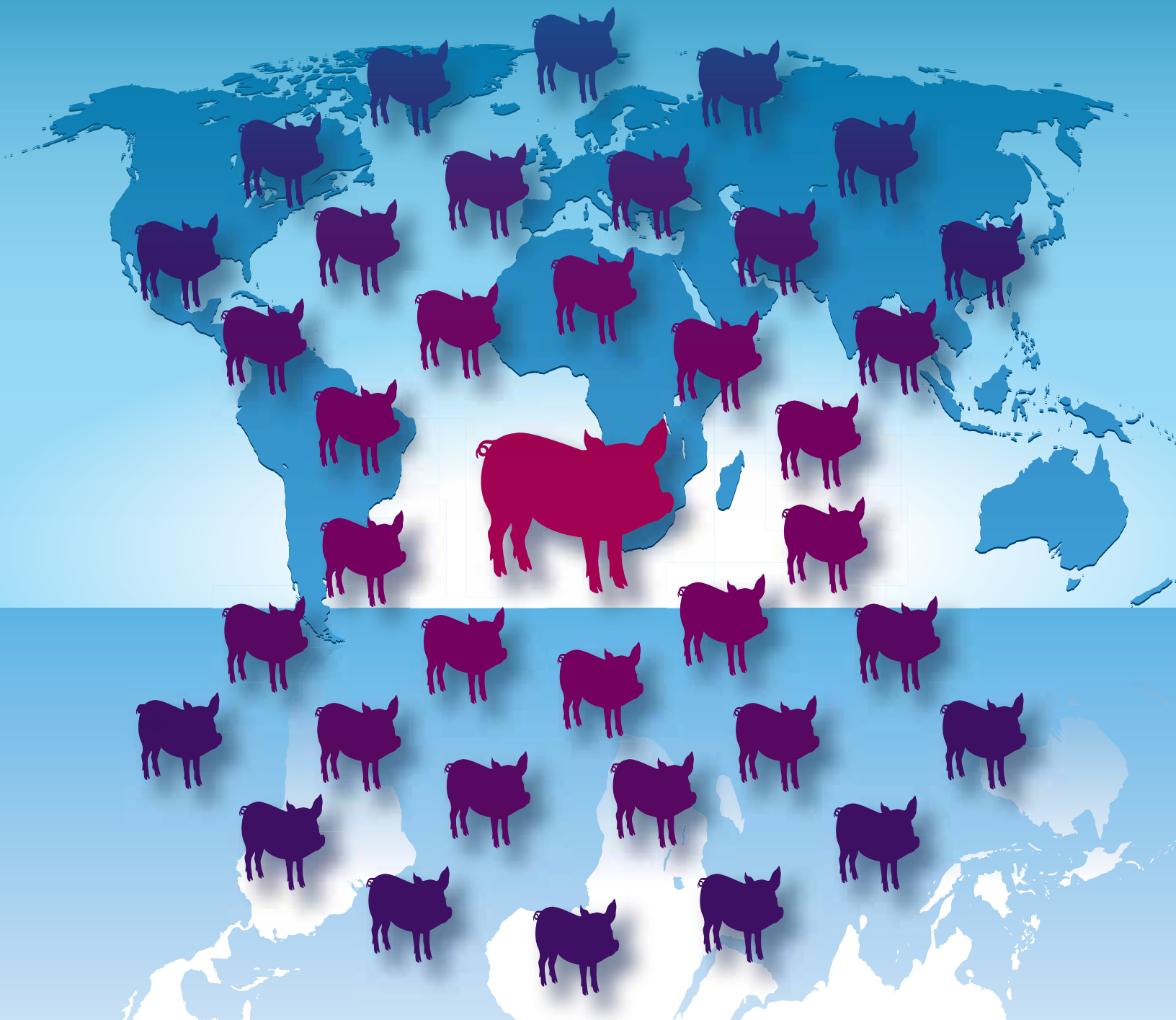


# SNACK AND FACT: EMERGING DISEASES

March 17, 2014  
House Agriculture Committee  
1300 Longworth House Office Building / Washington, DC



Hosted by the American Society of Animal Science

## Critical Drivers Of Emerging Disease

- Increased global transport of goods and the reliance on trade for human food.
- Greater human and animal travel which increases transport of disease causing organisms.
- Human population growth.
- Intensification of animal agriculture to provide food for the growing global population.
- Variation in climate from global to local levels altering the life cycles of disease causing organisms.
- Greater ability to detect disease causing organisms.
- Land use changes causing encroachment into wildlife areas.



For multiple reasons animal and human populations are as vulnerable as ever to new and emerging diseases. Animal scientists and veterinarians worldwide are working to create research linkages and mechanisms by which the scope of the potential problem is understood. This fundamental knowledge will lead to creation and implementation of more effective surveillance programs and disease management strategies. The importance to human health and wellbeing must also be considered. Outbreaks of zoonotic diseases in areas of the world where health care is limiting can create a global food crisis quickly. Thus, the work being conducted to address emerging animal diseases is critical to not only the livestock industry and food production in the United States but also to the stability of food across the world.

## The Current Situation

- The rate of emerging diseases is one new or re-emerging disease in humans and or animals every 8 months (OIE, 2012)
- Endemic diseases have increased in incidence (OIE, 2012).
- Emerging diseases account for 20% of the losses to livestock production and hamper transport of livestock products (including but not limited to meat, milk, eggs, and hides, wool, or pelts). They may also be animal welfare issues.
- In developing nations, re-emergence of zoonotic diseases (diseases passed from animals to humans and vice versa) threatens human health and prosperity.

## Possible Strategies To Reduce The Impact Of Emerging Diseases

- Use an interdisciplinary approach considering the biology, epidemiology, economics, and social implications of livestock diseases.
- Enhance and enable international cooperation of the entities charged with disease prevention and spread.
- Implement and provide federal funding for the **One Health** strategy
- Strengthen surveillance procedures and the creation of evidence-based decision making processes for risk assessment and action.
- Support fundamental research in genomics, bioinformatics and entomology to generate information needed to create tools to combat emerging diseases.
- Create research models of organisms and diseases that can ultimately lead to more effective risk management tools.
- Enhance and sustain facilities in which a disease outbreak can be controlled and studied.





Adult female *Lepeophtheirus salmonis*, located ventrally between pectoral and pelvic fins, on Atlantic salmon post-smolt.

## One Health

**One Health** addresses factors affecting animal health, human health, ecological health, and their interconnections using an interdisciplinary approach. Zoonotic diseases account for 58% of the currently recognized human pathogens, and domestic animals account for approximately 20% of zoonotic diseases. The intersection of human and animal health has important implications for federal policies and regulations.

## The Response To H1N1: A Success Story

The H1N1 pandemic that occurred in 2009-2010 is an example of how cooperation between agencies resulted in a coordinated response to a potentially serious situation. While not perfect, the response from monitoring to vaccination was a positive example of how all of the agencies and people involved, policy makers, governments, researchers, vaccine providers and other stakeholders collaborated to stave off a potentially catastrophic event. H1N1 also illustrated why a more fully coordinated network is critical for the next outbreak and highlights the needed for increased preparedness by the entire health community.

## PEDV: Status Report

- On 16 May 2013, the USDA Animal and Plant Health Inspection Service, National Veterinary Services Laboratories reported the detection of porcine epidemic diarrhea virus (PEDV) in the United States for the first time.
- This virus causes severe diarrhea and vomiting in young pigs.
- PEDV does not infect humans and is not a food safety risk.
- This virus is already found in many countries around the world, and there is no United States official regulation of the virus and no export restrictions to other countries.



## Schedule

**12:00 to 12:05**

### Welcome

*Walt Smith and Lowell Randel;  
FASS Science Policy Directors*

**12:05 to 12:10**

### Introduction & Goals

*Dr. Kris Johnson  
(Washington State University),  
ASAS Public Policy Committee*

**12:10 to 12:40**

### Public Health and Livestock, Emerging Diseases in Livestock. Status of PEDV in the United States

*Dr. Marcus Kehrli  
(National Animal Disease  
Center, USDA-ARS)*

**12:40 to 1:00**

### Wrap-Up and Discussion

*Dr. Deb Hamernik  
(University of Nebraska),  
ASAS Public Policy Committee  
Chair*

## Marcus E. Kehrli, Jr., DVM, PhD



Dr. Marcus Kehrli is the Director of the National Animal Disease Center of the USDA's Agricultural Research Service and has over 30 years of experience in infectious and emerging disease research. From 2003 until his selection as Center Director in May of 2013, Dr. Kehrli was the Research Leader of the Virus and Prion Diseases Research Unit at the USDA, Agricultural Research Service, National Animal Disease Center, Ames IA where he was responsible for all phases of a \$10 M annual research program covering a broad, multi-disciplinary program of applied and fundamental research on bacterial, viral and prion diseases in wildlife, cattle and swine. For 5 years prior to that, Dr. Kehrli was a Principal Research Investigator for Pfizer Global Research and Development, Veterinary Medicine Pharmaceutical Discovery, where his research focused on a pursuit of novel therapeutic solutions for livestock diseases. His research career at the USDA-National Animal Disease Center began in 1982 on immunological mechanisms affecting the #1 disease of the dairy industry - bovine mastitis, until 1998 when he joined Pfizer Animal Health. Dr. Kehrli is a Collaborating Professor at Iowa State University in the Departments of Animal Science, Veterinary Microbiology and Preventive Medicine and Immunobiology Program. Dr. Kehrli's primary area of research expertise is immunity to infectious diseases of cattle and swine.

