

# Three Global Animal Health Risks

Veterinarian shares global animal health concerns in animal protein production.

Story & photos by **Kasey Brown**, associate editor

**G**lobally, animal diseases cause 20% morbidity, but many high-impact diseases have the potential to be controlled and eradicated. Subhash Morzaria, veterinarian with the International Livestock Research Institute, said these diseases pose a significant threat to animal protein production and food security. He spoke in a breakout session of the 30th International Livestock Congress (ILC-USA) in Houston, Texas, March 5.

Global food security is a major issue, with 805 million people suffering from chronic malnutrition. More than 90% of total population growth will be in Africa, Asia and Latin American in the next 30 years, and most of the livestock population resides



► International Livestock Research Institute veterinarian Subhash Morzaria says disease intelligence and early detection, warning and response capacity could control and eradicate several global high-impact diseases.

in the developing world, he said.

The three main types of health risks are chronic endemic diseases, high-impact infectious transboundary animal diseases (TAD) and high-impact TADs that spill over to humans. He explained that chronic endemic diseases are those you can't see, like gastrointestinal parasites and vector-borne pathogens. High-impact infectious TADs include Rinderpest (cattle plague); peste des petite ruminants (PPR), or sheep and goat plague; and foot-and-mouth disease (FMD), among others. High-impact TADs that spill over to humans include avian influenza, Nipah virus, severe acute respiratory syndrome (SARS), and the Middle East Respiratory Syndrome

## Should Salmonella Be Treated Like *E. coli*?

Salmonella is the most common enteric infection in the United States, and steps are being taken to crack down on the prevalence of the bacteria, said Mohammad Koohmaraie, meat scientist with IEH Consulting. He told attendees of the 30th International Livestock Congress (ILC-USA) in Houston, Texas, March 5, that salmonella is the second-most-common bacterial foodborne illness after campylobacter infection. There are an estimated 1.2

million cases of salmonellosis each year, and 95% of those are foodborne.

Salmonella is not a declared adulterant in raw meat and poultry, he said. The Center for Science in the Public Interest (CSPI) petitioned the USDA Food Safety and Inspection Service (FSIS) to declare salmonella an adulterant. *E. coli* O157:H7 is an adulterant, which means that



► Meat Scientist Mohammad Koohmaraie suggested process control points rather than chemical dependency to help lessen the prevalence of salmonella. Salmonella prevalence is indicative of the conditions of production.

no presence at all is allowed. If any is found in food, then that food item is recalled. However, he granted that an adulterant classification is not the same as zero tolerance.

He noted that FSIS contends that the meat industry is not implementing all available control measures. Based on his own research experience, Koohmaraie said he agrees. Because salmonella is not a "per se adulterant" in raw meat and poultry, positive results

would not result in a recall without an outbreak of infection.

Right now, recalls are voluntary and require intense documentation for a recall to be called.

"Molecular typing is used in outbreak and traceback investigations. FSIS will ask for a voluntary recall when a direct link between an outbreak strain, patients, specific product lot and plant are all documented," he said. "Any bacteria that harms humans should not be in foods."

Koohmaraie said the petition called for adulterant status because of the success the beef industry has had with *E. coli* screening and control methods. While the two bacterias are not the same, he said, there are plans in place to decrease the prevalence of salmonella by 25%. The FSIS agency's action plan includes multiple components. First, baseline studies would be done to determine the salmonella prevalence in each type of commodity. Based on the results of this study, performance standards would be set. To reach those federal standards, each industry would be responsible to make the needed changes.

Salmonella prevalence is indicative of the conditions of production. In the plan to decrease prevalence, conditions of the production process would be screened more regularly, though in a moving window, to ensure that prevention protocols are in place all the time. Letters of caution will be sent if issues are found and plants must fix the issue before a follow-up visit. Larger samples will be taken to enhance detection, going from a 25-gram sample to a required 325-gram sample.

Koohmaraie concluded that the poultry industry can and must do more to control salmonella, citing up to a 50% prevalence of the bacteria found in some plants. There is some low-hanging fruit, like process control points, not just chemical dependency. The industry's vertical integration can help. There is good evidence that the FSIS approach can work, it just needs time to do so.

— by **Kasey Brown**, associate editor

Coronavirus (MERS CoV).

These diseases pose both economic and human risks, and ultimately affect food security and human well-being. Economic ramifications are difficult to calculate, but he said the U.S. case of bovine spongiform encephalopathy (BSE) is estimated to have cost \$3.5 billion, while FMD in the United Kingdom is estimated to have cost \$25-\$30 billion. The SARS outbreak in China, Hong Kong, Singapore and Canada is estimated to have cost \$30-\$50 billion.

Investments in strengthening veterinary services and prevention would benefit the international community and provide high

returns in increased production of animal protein, Morzaria said. Partnerships are necessary to control and eradicate diseases.

Global trade is beneficial to the world economy, but he grants that with it, pathogens can be spread more easily. International air travel has increased by about 5% each year, and large shipments of livestock now travel worldwide.

“Animals can be in any part of the world in a shorter time than the incubation period of many diseases,” he pointed out.

Because of this, he said, disease intelligence and early detection, warning and response capacity is crucial. Hot-spot

surveillance of these diseases will help stay on top of issues, as will appropriate policies regarding farming systems; value chains; live-animal markets; and interactions between wild animals, domestic animals and humans.

Organizations like the Food and Agriculture Organization (FAO) and the World Organization for Animal Health (OIE) have global strategies in place on FMD and PPR, which he said include a structured and stage-wise approach for endemic countries, defining the epidemiology, strategic vaccination and monitoring and evaluation.

