Special Lecture by Leading Program

Risk Analysis

Hokkaido University Leading Graduate School Veterinary Science for One Health

Date: Fri. Aug.3, 2012 18:00-19:30

Venue: Lecturer Hall

Chaired by Dr.Takashi Umemura (Laboratory of Comparative Pathology)

●1st Lecture:

"Evaluation of control strategies for bovine viral diarrhea in Hokkaido, Japan using stochastic modelling"

By Satoshi SEKIGUCHI

(Associate Professor, Laboratory of Animal Infectious Disease and Prevention, Department of Veterinary Sciences, Faculty of Agriculture, University of Miyazaki)

Infection with bovine viral diarrhea (BVD) virus in cattle can result in decreased body weight and milk production, reproductive disorders and death. Primary source of infection are persistently infected (PI) animals. In Hokkaido, Japan, all cattle entering common pasture in summer are vaccinated before movement to control the disease. Additionally, these cattle may be tested for PI animals and culled if positive. The efficacy of this control strategy remains nevertheless controversial. The aim of this study was to evaluate the efficacy of a test-and-cull and/or vaccination strategy for BVD control in dairy farms in two districts, Nemuro and Hiyama in Hokkaido.

A stochastic model was developed in order to compare the different control strategies over a 10 year period. The model is individual-based and follows the dynamic of the disease both within and between herds. Parameters integrated into the model were obtained from literature as well as from the Hokkaido government. Nine different scenarios were looked at in the model: no control, test-and-cull strategy based on an antigen testing either for calves or only for cattle entering common pastures, vaccination strategy either for all adult cattle or only for cattle entering common pastures, and combinations of these strategies.

Applying test-and-cull for all calves or vaccination for all adult cattle, the prevalence of PI animals significantly decreased. The findings obtained from this model will be the first of their kind in Japan and provide important information for the implementation of BVD control measures in Japan.

●2nd Lecture:

"How healthy is the global livestock population? -Attempting a qualitative and quantitative analysis"

By Ulrich SPERLING

(Director, Safe Food Solutions INC.(SAFOSO), Bern, Switzerland)

The health of the livestock population is of high importance for at least two reasons: 1) only healthy livestock can achieve high productivity and give rise to safe food; 2) zoonotic livestock diseases may be transmitted to humans and threaten public health. It is therefore essential to closely monitor the health status of the livestock population everywhere at all times.

In reality, however, our knowledge about the health of livestock is limited by different kinds of funding, sampling, and reporting biases. Especially in developing countries, these restrictions are further enhanced by a general lack of disease detection and reporting capacity. Health-relevant interactions between livestock and wildlife are often completely disregarded.

Against this background of lacking knowledge it is even more important to fully comprehend the livestock health information that is available. A comprehensive analysis of OIE animal health data will be presented and discussed. As well, future trends that may impact the spread of livestock diseases such as increase in demand, international trade, and climate change will be discussed. A conceptual framework for the animal health trajectories in three different global regions will be presented.