（Abroad・Domestic）Official trip report form（Student） 2014/08/18 (Year/Month/Day)

Name	Nyamsuren Ochirkhuu
Laboratory	Laboratory of Infectious Diseases
Year (Grade)	D1
Destination	Mongolia
Period of trip	2014.7.24-2014-8.7
Purpose of trip	Field sampling, Epidemiologic research, Research seminar at MSUA.

Title of my study: Study on epidemiological and immunological research for intractable infectious diseases in livestock of Mongolia.

Background: Animal husbandry is still keeping one backbone of the national economy of Mongolia. However, in Mongolia, major problems of the livestock sector are inadequate animal health service and high risk of infectious diseases, since there are the risks of several trans-boundary, zoonotic and intractable infectious diseases in livestock of Mongolia. In addition, the immunological characters of Mongolian native animals have not been well studied. Since some species of animals could be resistant to certain pathogens, it will be important to clarify the immunological characters of these animals including yak and native cattle in Mongolia, so that we can establish new methodology to control infectious diseases in the field.

The purposes of the research are to do molecular epidemiological survey to obtain detailed information on the prevalence of several intractable infectious diseases, such as Bovine leukemia, Bovine viral diarrhea, John's diseases, Tuberculosis, Bovine malignant catarrhal fever and Anaplasmosis in cattle, and Maedi-visna, Caprine-arthritis-encephalomyolitis, Ovine pulmonary adenocarcinoma, Peste-des-petits-ruminant in small ruminants. In addition, to characterize immunological properties of Mongolian naive animals to obtain useful information for the development of new methodology to prevent them from infectious diseases is also included.

This study will contribute to the improvement of the veterinary section of Mongolia that combat with those infectious diseases and create new reference data for the next studies

Purpose of the trip:

I have focused on the epidemiological and immunological research for intractable infectious diseases in livestock of Mongolia, and went to Mongolia for sampling of my study between 24th, July -7th, August with Associate Prof. S. Konnai. There was several purpose of my trip described as follows:

1. Blood collections from farm cattle, native cattle, yak, sheep and goat in the fields.
2. Isolation of serum and DNA/RNA extractions from collected blood for epidemiological and immunological research.
3. Diagnosis of Bovine viral diarrhea virus infection by the immunochromatography method.

4. Diagnosis of John's disease by ELISA.
5. Research seminar at Mongolian State University of Agriculture (MSUA).

Achievement of the trip

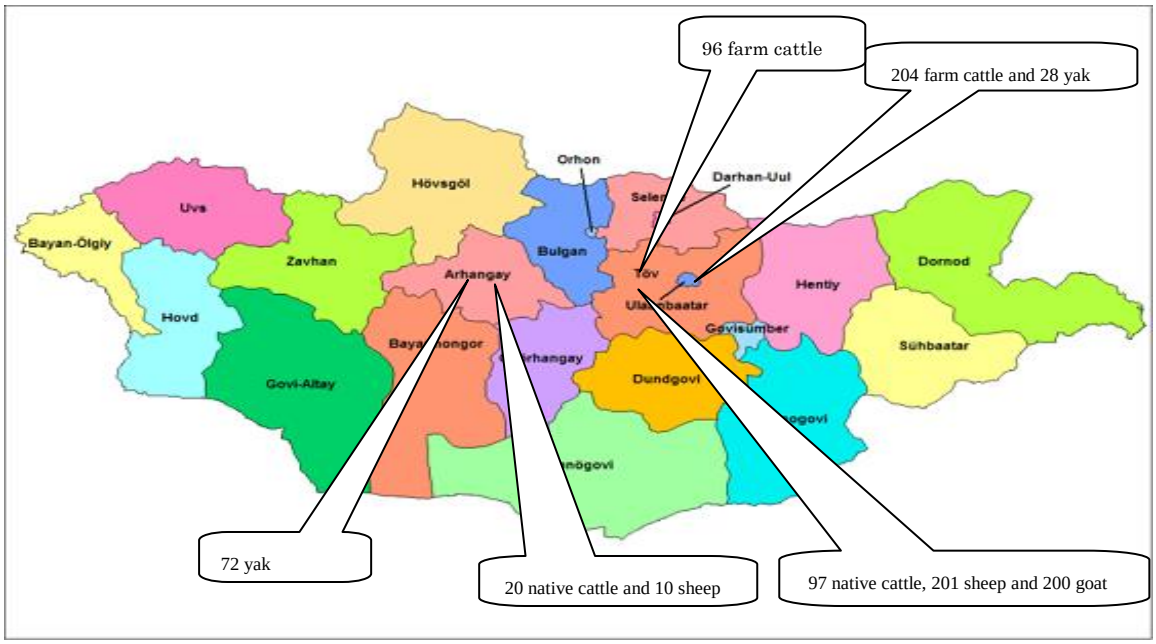
Table-1. Detail schedule of the trip

7.24 (Thu)	Departure from Chitose, Arrival at Mongolia, stay at MSUA.
7.25 (Fri)	Discussion on the collaboration with MSUA and Institute of Veterinary Medicine (IVM), and preparation for field sampling.
7.26 (Sat)	Blood collection from 204 farm cattle and 28 yak in Songinokhairkhan district of Ulaanbaatar city
7.27 (Sun)	Collection of serum samples, DNA/RNA extraction from collected blood samples at IVM. BVDV diagnosis.
7.28 (Mon)	Blood collection from 97 native cattle, 201 sheep and 200 goat in Lun sum, Tuv province.
7.29 (Tue)	Collection of serum samples, DNA/RNA extraction from collected blood samples at IVM. BVDV diagnosis.
7.30 (Wed)	Blood collection from 96 farm cattle in Bornuu sum, Tuv province.
7.31 (Thu)	Collection of serum samples, DNA/RNA extraction from collected blood samples at IVM. BVDV diagnosis.
8.1 (Fri)	Blood collection from 20 native cattle and 10 sheep in Tsenkher sum, Arkhangai province
8.2 (Sat)	Blood collection from 72 yak in Bulgan sum, Arkhangai province
8.3 (Sun)	Collection of serum samples, DNA/RNA extraction from collected blood samples at IVM. BVDV diagnosis.
8.4 (Mon)	John's disease diagnosis. Application of sample transfer permission to quarantine inspection office of Mongolia.
8.5 (Tue)	Presentation at research seminar "Study on epidemiological and immunological research for intractable infectious diseases in livestock of Mongolia" at MSUA
8.6 (Wed)	Acquisition of sample transfer permission. Sample packing and other preparation.
8.7 (Thu)	Fly back to Japan.

Sampling place and animals

Three regions were chosen based on the areas free from FMD and other trans-boundary diseases and different geographical features and animal populations in Mongolia (Fig. 1). Blood samples were collected from 2 province and 1 city areas at which 204 farm cattle and 28 yak samples were collected from Songinokhairkhan district of Ulaanbaatar city, 97 native cattle, 201 sheep and 200 goat samples were collected from Lun sum of Tuv province, 96 farm cattle sample were collected from Bornuur sum of Tuv province, 20 native cattle, 10 sheep samples were collected from Tsenkher sum of Arkhangai province and 72 yak samples were collected from Bulgan sum of Arkhangai province. More detailed information on the locations of sampling sites was shown on the map of Mongolia (Figure 1).

Sampling site and animals



Mongolian native cattle

Mongolian yak

Dairy cattle (Holstein and other breed)

Mongolian sheep and goat

Epidemiological study of John's disease and Bovine viral diarrhea

John's disease: Three seropositive cattle were identified from a total of 379 samples collected at 12 provinces, determined by ELISA (Table 2).

Bovine viral diarrhea: Six BVDV-infected cattle from a total of 379 samples collected at 12 provinces, determined by immunochromatography method (Table 3).

Table 2.

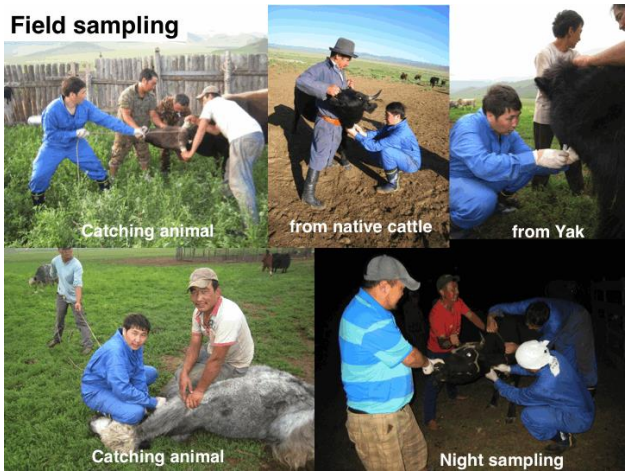
Name of province	Number of tested samples	Number of positive	Note
Uvs	50	0	
Khovd	20	0	
Zavkhan	30	0	
Govisumber	30	0	
Govi-Altai	20	0	
Bayankhongor	20	0	
Selenge	22	0	
Arkhangai	20	1	Female, 8 years old
Tuv	60	1	Female, 5 years old
Ulaanbaatar	40	0	
Khuvsgul	20	1	Female, 2 months
Orkhon	24	0	
Total (12 provinces)	356	3	

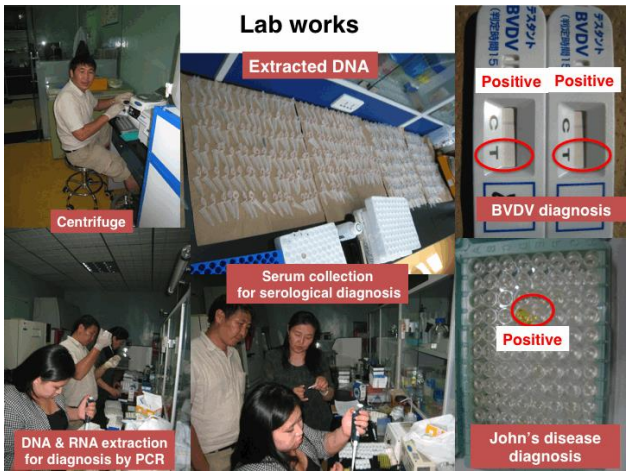
Table 3

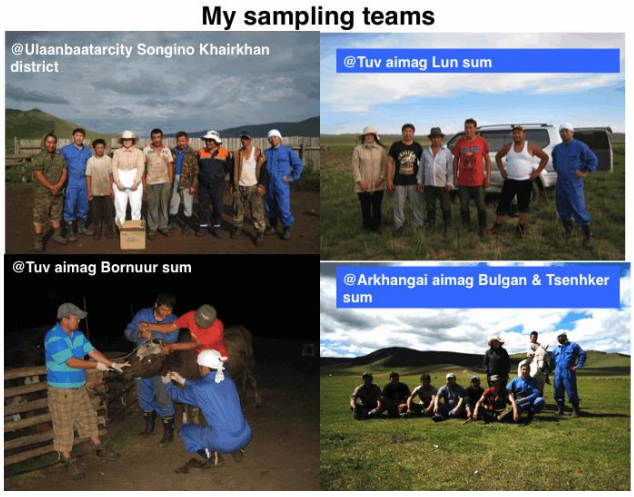
Area	Number of tested samples	Number of positive samples	Note
Bornuur sum, Tuv province	38	2	Female, 5 years old, Holstein breed and female, 3 years old, Simmental breed
Bulgan sum, Arkhangai province	40	2	Female, 1 months yak and male, 2 months yak
Tsenkher sum, Arkhangai province	20	2	Female, 5 years old, Native cattle and female, 8 years old, native cattle
Lun sum, Tuv province	12	0	
Total (4 provinces)	110	6	

Presentation at research seminar

I organized special seminar in the meeting room at School of Veterinary Science and Biotechnology, MSUA in August, 8th. Some professors, researchers and students came to this seminar. Title of the presentation was “Study on epidemiological and immunological research for intractable infectious diseases in livestock of Mongolia”, and my presentation included the introduction of Graduate school of veterinary Medicine, Hokkaido University, molecular epidemiological survey of tick born disease in Philippines, sampling and detection of some pathogens in livestock of Mongolia and future plan of my study.







Acknowledgements

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Dr. Raadan Odbileg (Researcher)

Dr B.Battsetseg (Director)

All staffs for field samplings

All member of laboratory of virology, Institute of Veterinary Medicine.

All member of laboratory of infectious diseases, Hokkaido University

Approval of supervisor	Institution・Official title・Name： Laboratory of Infectious Diseases, Graduate School of Veterinary Medicine, Professor Kazuhiko Ohashi 印

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