

STUDY REPORTS

1. Title: Serological Classification and Detection of Leptospirosis in Thailand.

Principal investigators:

Chua Wongsongsarn, D.V.M.*
Paul C. Smith, CPT, VC
Jack S. Stanton, MAJ, VC
Achit Chotisen, D.V.M., Ph.D.**
Richard O. Spertzol, MAJ, VC

Assistant investigators:

Dilok Kasornombat, D.V.M.***
Preecha Klainil, D.V.M.***
Prayot Tanticharoenyos, D.V.M.
Jon H. Goodan, SP 4
Jack M. Preston, SP 4

Objective: The objective of this study is to determine the serological prevalence of leptospiral agglutinins in domestic animals and humans in Thailand.

Description: Single blood samples from domestic animals were collected by field teams of the Department of Livestock Development, Ministry of Agriculture. The sera were separated in the field by clot extraction and shipped to Bangkok with either wet or dry ice as a refrigerant. Other departments of the USA Medical Component, SEATO Medical Research Laboratory submitted paired human sera from FUO studies to be tested for leptospiral agglutinins. Fourfold serial dilutions were made and tested by the microscopic agglutination-lysis test utilizing eighteen different live diagnostic antigens.

Progress: During the report period, 1036 buffalo sera were collected and tested. Four hundred and twenty-nine, or 41.4% had titers of 1:25 or greater. One-hundred ten had their highest titers to L. hyos. The next most common serotypes appeared to be L. pyrogenes, L. borincana and L. wolffi. (See table). There were 808 cattle bled and tested, of which 312 or 38.61% gave positive reactions in the 1:25 dilutions or greater. Serological affinities for L. borincana, L. hyos, and L. wolffi were predominant. Sixty-two swine were tested and only 1 serum was positive. Sixteen pooled samples were taken from rodents in the laboratory animal production colonies and all were negative. In collaboration with the virology department, 585 human sera from the Republic of Viet Nam were tested with 41 showing reactions of 1:100 or higher. Three hundred seventy-eight other human sera were tested with only 2 positives. The predominant serological response in these human sera were to L. patoc, and L. borincana.

Summary: Serological evidence indicates that the prevalence of Leptospirosis in domestic animals is unusually high in Thailand. Though it is difficult to evaluate the clinical significance in animals it clearly indicates that domestic animals could prove to be a source of infection that might play a significant role in military medicine. The need for further study in the epidemiology of this disease is obvious.

* Chief, Education and Research Division (Dept of Livestock Development)

** Chief, Immunology and Serology Branch (Dept of Livestock Development)

*** Department of Livestock Development.

TABLE I
SERUM AGGLUTININ RESPONSES

Antigen	Buffalo (1036)		Cattle (808)		Human (RVN) (585)	
	1:25	1:100 ⁺	1:25	1:100 ⁺	1:100	1:400 ⁺
<u>L. patoc</u>	19	0	26	1	9	10
<u>L. butembo</u>	13	3	4	0	0	0
<u>L. celledoni</u>	0	0	1	0	0	0
<u>L. bataviae</u>	6	0	2	1	3	0
<u>L. pomona</u>	3	0	2	0	0	0
<u>L. diasiman</u>	1	0	1	0	0	0
<u>L. hyos</u>	98	12	44	20	0	0
<u>L. autumnalis</u>	25	10	11	4	0	0
<u>L. ballum</u>	3	0	2	1		
<u>L. canicola</u>	38	11	16	4		
<u>L. icterohorrhagic</u>	4	0	0	2	3	0
<u>L. pyrogenes</u>	53	12	7	3	2	0
<u>L. alexi</u>	0	1	0	2	0	0
<u>L. grippotyphosa</u>	3	2	2	1	1	2
<u>L. borincana</u>	44	14	63	58	5	1
<u>L. wolffi</u>	43	5	23	10	1	2
<u>L. javanica</u>	4	0	0	0	0	0
<u>L. australis</u>	1	1	1	0	2	0