

## Strategies for the Control of Surra in Asia

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### ABSTRACT

In 1995 and 1996 *Trypanosoma evansi* infection (surra) was reported from the following 11 countries in Asia: Bhutan, India, Indonesia, Iran, Laos, Mongolia, Myanmar, Nepal, Pakistan, Philippines and Thailand. However, it appears that the disease has a much wider distribution in Asia. To improve a nationwide diagnostic capability, it is desirable to develop and widely apply simple and reliable diagnostic methods and field veterinarians should be well trained in correct diagnostic procedures. To backup such efforts both regional and national reference laboratories should be established. Research work should be promoted to investigate the pathogenicity of *T. evansi* strains in Asia, epidemic factors of *T. evansi*, the role of wild animals, economic impact of the disease, and the selection of the most cost-effective trypanocidal drugs to be used in Asia. To coordinate such activities, it is essential to establish a regionally coordinated programme on protozoal diseases of animals in Asia.

### INTRODUCTION

Surra is essentially a disease of horses and camels, but the causative agent, *T. evansi*, produces the disease in buffaloes, llamas and dogs. Also it may produce mild or subclinical form of the disease in cattle, donkeys, goats, sheep and pigs. It has been said that the disease came to Asia via infected camels from Africa. In fact *T. evansi* may produce a fatal disease in camels in the Middle East and Asia. Usually draught animals suffer more than the other animals. Until the last decade Surra was considered as one of tropical diseases in South or South-East Asia. In recent years, however, the disease was diagnosed in Mongolia, Northern China and Soviet Asia, indicating that the disease has much wider distribution in Asia. In 1995 and 1996 Surra was reported to the OIE/FAO from Bhutan, India, Indonesia, Iran, Laos, Mongolia, Myanmar, Nepal, Pakistan, Philippines and Thailand (Fig. 1). As the result of global warming and the spread of vector insects, the northern limit of Surra infected zone may be gradually shifting toward north, and it is considered necessary to investigate the true distribution pattern of *T. evansi* in Asia by strengthening the diagnostic capability, epidemiological studies and the control measures of the disease in all the countries in this region.

### DIAGNOSTIC METHODS

As described in the OIE Manual of Standards for Diagnostic Tests and Vaccines (OIE 1996), laboratory diagnostic methods for both identification of parasites and serological tests such as indirect fluorescent antibody tests and ELISA tests have been developed. Also, simple diagnostic tests such as card agglutination tests (Bajyana Songa and Hamers 1988) and latex agglutination tests (Nantulya 1994) have been developed.

## CONTROL OF SURRA IN ASIA

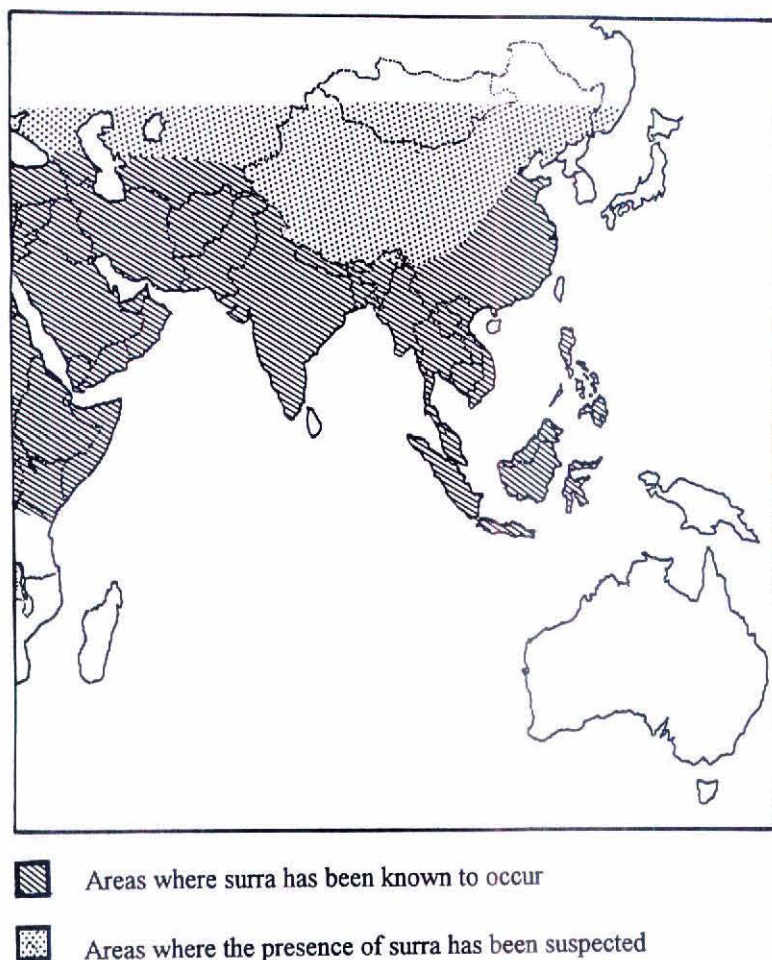


Figure 1. Distribution of surra in Asia

The common problems prevailing in the majority of developing countries are as follows:

- 1) Some of the countries and territories in this region have no diagnostic laboratory to identify and confirm the presence of surra;
- 2) Only a limited number of appropriate diagnostic specimens are submitted to the central or provincial laboratories for confirmation due to lack of transportation, thermo flasks, funds, interest of veterinary officers, etc.; and
- 3) Veterinary field officers are often not provided with equipment, reagents and kits necessary for diagnosis of surra in remote areas or isolated islands.

For these reasons, it is considered essential to establish at least one laboratory in each country that is capable of diagnosing surra. It is also considered necessary to establish or designate at least one regional reference laboratory for surra. On the other hand, simple pen-side test methods need to be developed and standardised, and the standardised tests should be made widely available to field veterinary diagnosticians through frequent training and by reducing costs for those diagnostic kits to the level at which small farmers in Asia can afford them. It is also essential to maintain strong backup of diagnostic laboratories in



order to check the results of pen-side tests in comparison with standard laboratory tests.

## EPIDEMIOLOGY

Much still remains to be studied on the epidemiology of surra in Asia. For example, pathogenicity of various *T. evansi* strains in different animals needs to be studied involving as many countries in Asia as possible. At the same time the distribution of *T. evansi* resistant host animals may also be studied. Furthermore, epidemiological factors which influence the occurrence of surra or virulent strains of *T. evansi* should be investigated with a view to either preventing surra or minimising economic losses due to *T. evansi* infection. The role of wild animals in the maintenance and/or spread of surra in Asia also needs to be studied in order to prevent the spread of the disease or to eradicate the disease from an infected country or zone. Economic impact of surra on farm animals and draught animals should be investigated in some of the infected countries, and cost-effective control measures should be developed and widely applied.

## TREATMENT

Since no vaccines for surra are available, much more work is needed to find the most effective trypanocidal drugs that are economically attractive to animal owners. Because surra does not cause serious and extensive damages to national economy with the exception of a few isolated cases, national veterinary authorities have not put enough emphasis on the development of new and cheap trypanocidal drugs, and consequently pharmaceutical industries have not marketed for a few decades new drugs with the exception of Melarsomine (Cymelarsen).

Such drugs as suramine (Naganol), quinapyramine (antricyde sulfate) and diminazene aceturate (Berenil) have been used for more than 40 years in some countries. It is, therefore, highly desirable that a well designed and coordinated work plan be developed to carry out comparative studies on the evaluation of available trypanocidal drugs for treatment of different animal species infected with *T. evansi* in several countries in Asia, though quite a few studies have been carried out elsewhere. To carry out the above activities in this region, it is recommended that a regional centre or centres for research on protozoal diseases in Asia should be established with a view to coordinating research activities in Asia.

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