CHAPTER - 7

Conclusion
CONCLUSION

The occurrence of BTV disease in India became endemic in native breeds. In Tamil Nadu there are 58 lakhs of sheep in which 12 lakhs are Macheri breed. In 2005 around 2 lakh sheep were suffering from BT disease. BTV antibodies are common in sheep with clinical signs. Outbreaks usually occurred between June and December during the monsoon period when sheep biting midges, *Culicoides* spp. greatly increases. The disease is recorded regularly in Tamil Nadu where a total of 258 outbreaks are reported between 1986 and 1995 with morbidity ranging from 3.3% to 22.8% (Saravanabava, 1992; Sreenivasulu et al., 2003). 165 blood samples of BTVs have been collected from the 95 outbreaks during 2003-2006 infected sheep have been used to demonstrate virus activity. A total of 13 BTV isolates has been reported in this study. Detailed systematic study is needed to record the BT disease outbreak. The occurrence of BTV varies between different parts of Tamil Nadu depending on the time of rainfall. Maximum number of outbreaks (41-51) was recorded during 2005-2006 with 168.24 – 558 mm rainfall. In Tamil Nadu the outbreaks were more frequent during the North-East monsoon period. Clinical disease was slightly different in native sheep, the major difference being that swelling of the lips and face was less conspicuous. The classical signs of cyanosis of the tongue and reddening of the coronary band are the common feature of the disease in a native breed sheep, Macheri. *Culicoides* insects are the vectors of BTV. Of over 1400 species present worldwide, at least 39 have been reported to occur in India. *C. imicola* and *C. oxystoma* were found to be prevalent in Tamil Nadu (Sreenivasulu et al., 2003). Details of vector species responsible for transmission of BTV in India are lacking. Virus-vector relationships also need to be analysed critically. It is evident that multiple BTV serotypes are circulating in this region and virulence characteristics need to be studied to identify the pathogenic serotypes. Most BTV serotypes have been reported from
Maharastra, Gujarat, Andhra Pradesh, Tamil Nadu and Haryana (Sreenivasulu et al., 2003). However, data is incomplete because systematic studies have not been undertaken to elucidate the prevalence of serotypes in different states. Further, it is necessary to map the BTV serotypes circulating in different Indian states with a long term objective of the production of suitable vaccines. Major impediments to control the disease include the presence of multiple virus serotypes, the broad vertebrate host range of the virus and a lack of detailed knowledge of vectors.

BTV is often difficult to isolate in the laboratory. The success of virus isolation is enhanced if blood is collected from sheep showing clinical signs and at the early stage of the disease. Viraemia is primarily associated with red blood cells and leucocytes and the virus coexist in infected sheep with high concentrations of neutralizing antibody. The routine method of BTV isolation is through embryonated chicken eggs, which is time consuming and expensive. Due to the lack of infrastructural facilities, embryonated chicken eggs method is widely used in India. In order to overcome the above, serological techniques as AGPT, IFT and serum neutralization test to detect antibody or antigen have been used where required to certify animals as bluetongue free. Serological tests can be used in a variety of ways to evaluate BTV infections and epidemiology. However, immediate serological reactions have been a major problem. For accuracy in diagnosis, more sensitive and specific assays, such as those based on antigens produced by recombinant DNA technologies and the polymerase chain reaction should prove useful. The potential for application of new sophisticated technologies could greatly enhance diagnostic capabilities for virus identification and differentiation in the near future.