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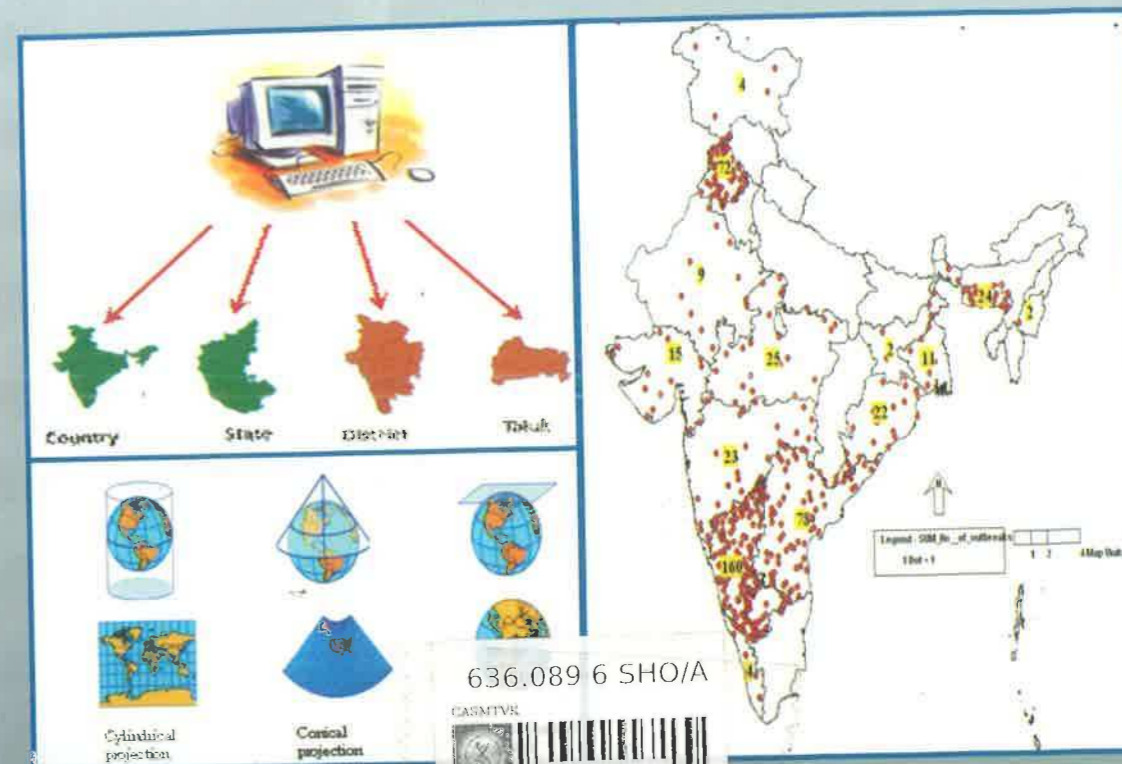
ANIMAL DISEASE INFORMATICS

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Foreword

I am immensely pleased to know that Project Directorate on Animal Disease Monitoring and Surveillance, Bangalore is bringing out a book on "Animal Disease Informatics" based on the lectures delivered by the experts during the training programme conducted by Project Directorate on Animal Disease Monitoring and Surveillance (PD_ADMAS). The animal disease informatics has gained recognition as basis for livestock epidemiology and economics. The Directorate is being upgraded to National Institute of Veterinary Epidemiology and Disease Informatics (NIVEDI) in the 12th five year plan and the relevance of publishing a book in this context is highly appreciated.

Animal Disease Informatics deals with all the information related to livestock disease transmission, its persistence, further spread to other areas and analyses of economic impact of such diseases. It helps in designing a holistic solution to the problem. The subjects covered in this book are very important especially transboundary disease surveillance, geographical information system (GIS), glossary in epidemiology, sampling techniques and outbreak investigation methodology.

The topics covered can be correlated with global climate change scenario. The Directorate has abundant records on weather related parameters which can be correlated with Animal disease informatics. The information available in this book may form the guidelines for field veterinarians, livestock policy makers, administrators, etc.,. The book also discusses the important points on economics, cost benefit and impact assessment of various livestock diseases and its control strategies.

It will serve as an excellence source of current information for researchers in livestock health, with existing surveillance systems under informatics driven perspective. I congratulate the entire team for their endeavour.


KML Pathak

Preface

The livestock disease clustering vis-à-vis temperature humidity index provides an idea about the outbreak of diseases in particular geographical regions. Impact of the disease outbreaks on animal husbandry leads to huge economic losses and the policy makers are keen in knowing the total losses due to diseases in livestock population. All these help in the establishment of early warning system and forecasting of livestock disease that would enable veterinary officers to take appropriate disease control measures so as to contain the spread of diseases. The subjects cited above in a comprehensive way leads to Animal Disease Informatics.

This book on "Animal Disease Informatics" is the outcome of the lectures delivered by the international and national experts during the training programme on "Animal Disease Informatics" conducted by PD_ADMAS, Bangalore to the Principal Investigators/ Co-Principal Investigators of collaborating units of Animal Disease Monitoring Surveillance (ADMAS). We are deeply indebted to all the contributors for these lectures as without their help, it could not have been possible to bring this book.

We are thankful to the Deputy Director General (AS), ICAR, New Delhi for conceptualization of this topic for the purpose of refreshing training on "Animal Disease Informatics" to Livestock disease investigators of AICRP on ADMAS. Our thanks are due to Assistant Director General (AH), ICAR for his constant support and encouragement in preparing this book. We also thank all those who contributed in bringing out this Animal Disease Informatics book.

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SURVEILLANCE AND MONITORING OF ANIMAL DISEASES: NATIONAL PERSPECTIVE

H. Rahman, D. Hemadri and M.R. Gajendragad

**Project Directorate on Animal Disease Monitoring and Surveillance
(PD_ADMAS), ICAR, Hebbal, Bangalore-560024**

High quality national surveillance is the cornerstone of infectious disease prevention and control
—World Health Organization (2004)

India has a fast growing livestock sector and is the home to 530 million domestic animals. Livestock and poultry sectors play a critical role in the welfare of India's rural population and contribute significantly to the agro-based economy of India. Together with the fisheries sector, it accounts for nearly 35.0 % of the value of the output from total Agriculture and allied sectors and contributing about 6.0% of the national GDP. This sector is emerging as an important growth leverage of the Indian economy. This enterprise provides a flow of essential food products, draught power, manure, employment, income, and export earnings. Distribution of livestock wealth is more egalitarian as compared to land. Hence, from the equity and livelihood perspective, it is considered an important component in poverty alleviation programmes.

Diseases of livestock can cause major losses, both to livestock owners and the country as a whole. In many developing countries including India, outbreaks of major diseases occur frequently, and are poorly controlled, resulting in large numbers of deaths. Less spectacular chronic or subclinical diseases may also cause high losses through decreased fertility, decreased weight-gain and inefficient use of feed or the inability of animals to work. According to FAO, annually at least 10% of sheep and goats die from the highly infectious diseases. In addition, zoonotic diseases (diseases affecting both animals and humans) may have an important impact on public health. Without accurate surveillance data it is difficult to understand the true health status of animal populations and to guide the use of limited animal health resources and lose opportunities for early prevention and control before the disease becomes entrenched. Inadequate surveillance and consequent "blindness" to the health status of the population has contributed to the uncontrolled global spread diseases in the past. Thus effective surveillance of animal diseases and protection