Proposed design of new building of PD_ADMAS at Yelahanka, Bangalore

भाकृअनुप
ICAR

हर कदम, हर डगर
किसानों का हमसफर
भारतीय कृषि अनुसंधान परिषद

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PD_ADMAS News

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Dr. S. Ayyappan, Secretary, DARE & DG, ICAR, laid the foundation stone for the proposed new building of PD_ADMAS at Yelahanka, Bangalore

About PD_ADMAS News

The Project Directorate on Animal Disease Monitoring and Surveillance (PD_ADMAS), Bangalore is an institute of ICAR. Mandates of the institute are research and development on epidemiology of livestock diseases, understanding specific disease process for rational development of diagnostic and strategic control technologies for livestock diseases including zoonosis, biodiversity of pathogenic microbes, development of systems for forecasting and forewarning of economically important livestock diseases and healthcare measures. It also supports in conducting sample frame based state level population surveys of livestock diseases through AICRP on ADMAS with the help of 15 coordinating centers.

This is the first issue of PD_ADMAS News, a Biennial publication that provide and promote research activities on epidemiology of national livestock disease profile and trends, forecasting and forewarning of animal diseases with the help of AICRP on ADMAS.

From the Director's Desk....

Establishment of early warning surveillance systems, preparing for, investigating and responding to priority diseases is very much critical in reducing morbidity and mortality in vulnerable populations, keeping in view of protection of global health security. Delay in the detection of outbreaks and inadequate preparedness and response aggravates the impact of spread of diseases, leading to increased number of cases, increased duration of epidemics, excess mortality and the potential for spread to other areas nationally, regionally, or globally. Project Directorate on Animal Disease Monitoring and Surveillance (PD_ADMAS) is the only institute catering to the needs of surveillance and monitoring of livestock diseases and thereby caring for the country's animal health. Livestock population and disease profiles available in the databank are the cynosure of the institute. Different units of PD_ADMAS are working towards designing of various forecasting and forewarning modules in order to predict the livestock disease outbreaks. Spatial epidemiology, temporal epidemiology, local and global epidemiology, molecular epidemiology of various livestock diseases are routinely studied which are of utmost important in formulating the disease control strategies. The institute

Contd. Page 5 ...

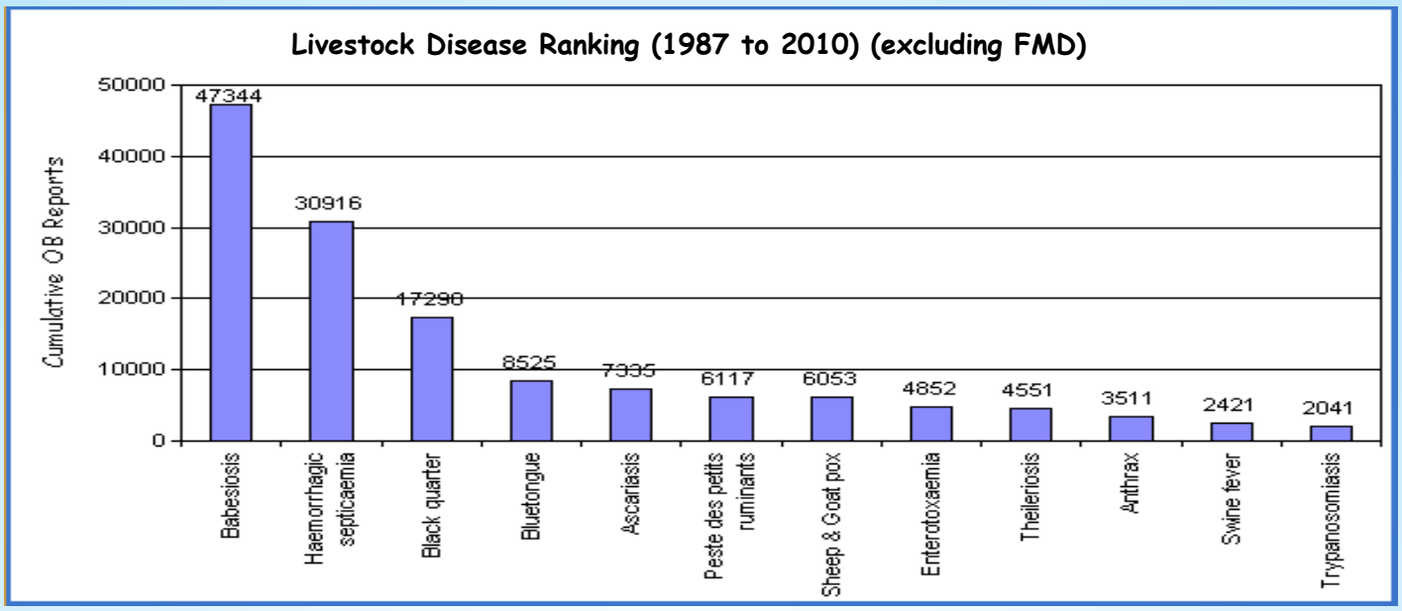
Former Project Directors

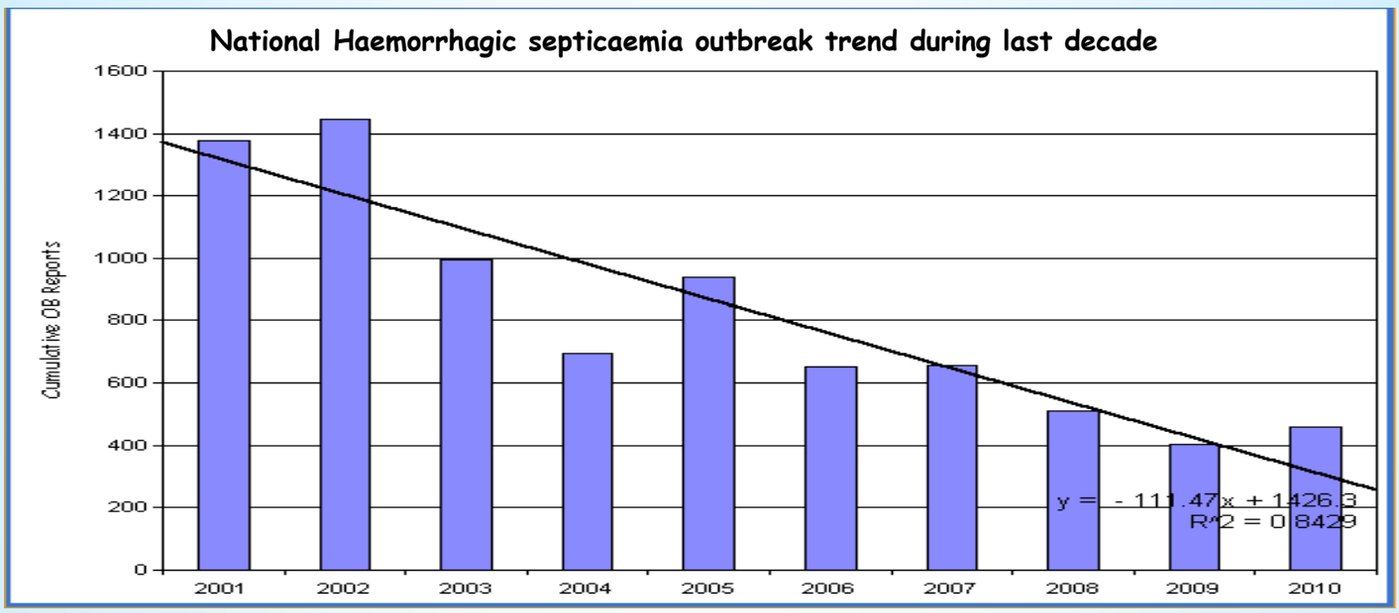
Dr M Rajasekhar was the founder Project Coordinator of the AICRP on ADMAS from 01-07-1987 to 09-11-2000 which was established in 7th five year Plan. He was the first Project Director of this institute from 10-11-2000 to 30-09-2002. He showed the importance of monitoring and surveillance of animal diseases in control strategies and gave newer thoughts to the field of veterinary epidemiology. He took a challenge task of seromonitoring and surveillance of Rinderpest eradication programme and his continuous efforts in these lines have brought many accolades and awards to the institute. He is the recipient of OIE Meriotrious Award etc. Recently he was conferred with FAO gold medal for his outstanding contribution in eradication of Rinderpset from the country as well as from the world.

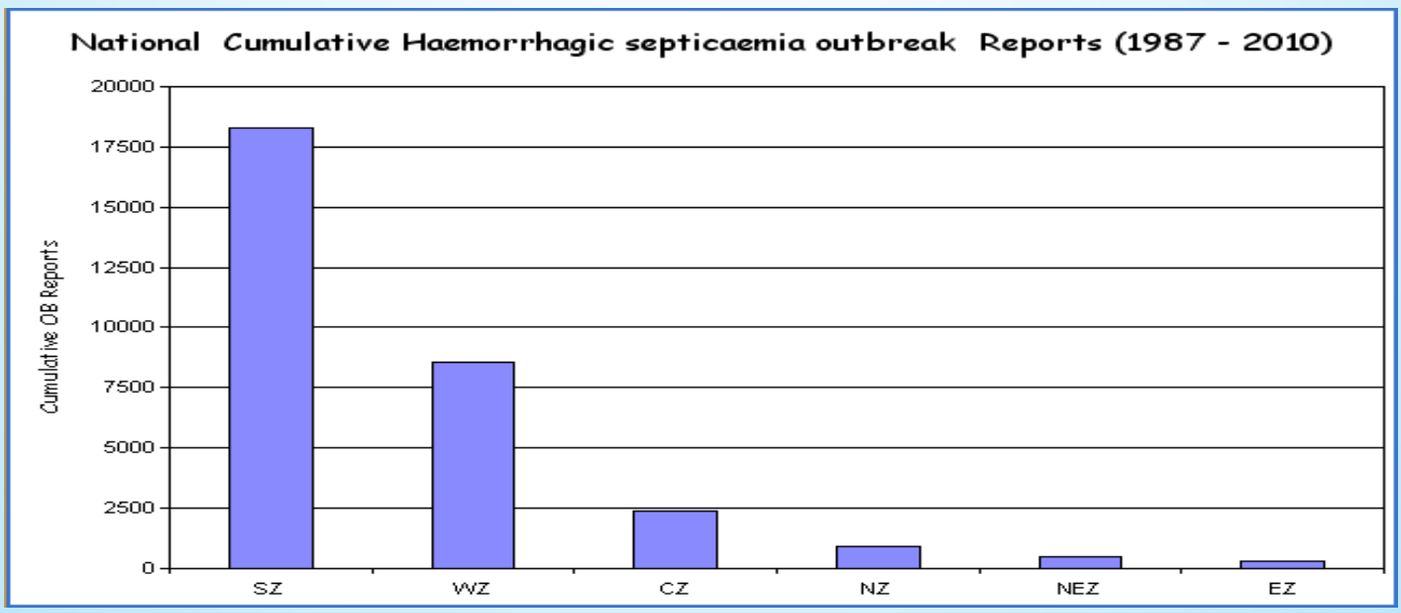
Dr K Prabhudas, a graduate and post graduate in Veterinary Microbiology from College of Veterinary Sciences, Tirupati, A.P. and Ph.D. from IVRI. He belongs to 1st batch of ARS scientists and joined the service during 1976. He served at Mukteswar and Bangalore stations of IVRI. He is one of the key persons in control programme of RP in the country. He underwent training at Switzerland under Indo-Swiss collaborative research project. He guided several Master's and Doctoral degree students. In 2002, he took over the charge of Project Director of PD_ADMAS, Bangalore. In 2007, he was selected by ASRB as Project Director, PD_ADMAS and served till superannuation. He remained functional for the implementation of different projects and planning of proposed new building at Yelahanka, Bangalore.

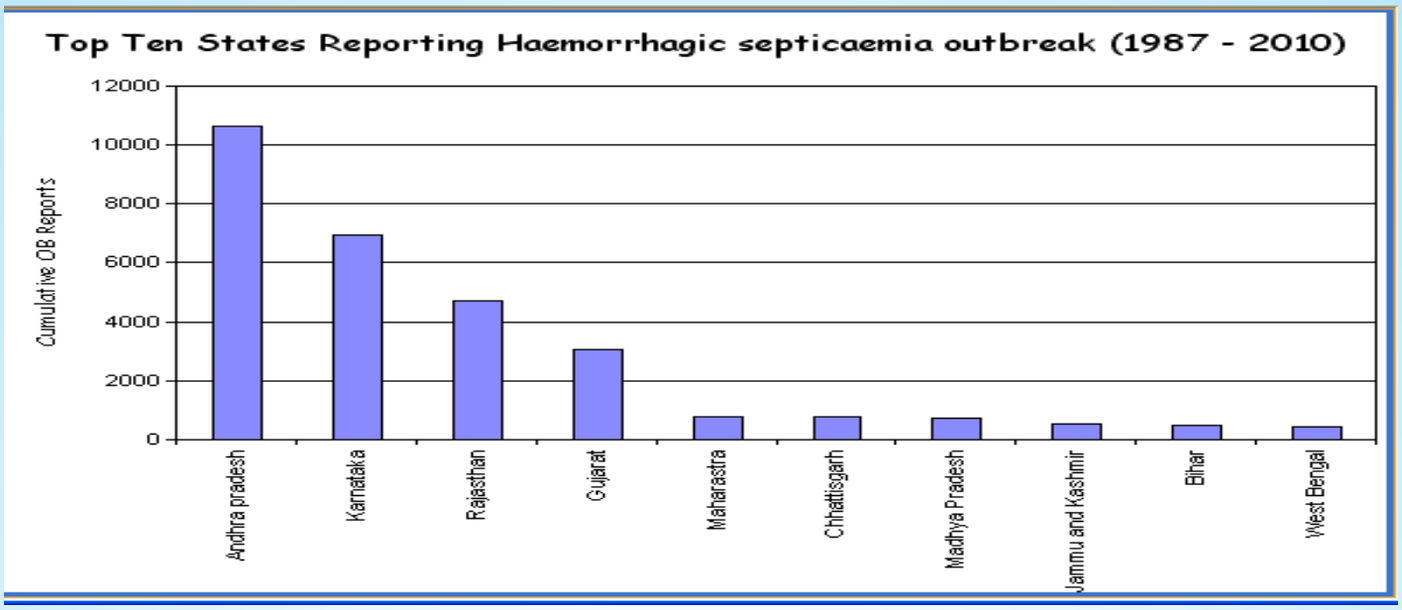
Dr. H. Rahman takes over as Project Director, PD_ADMAS

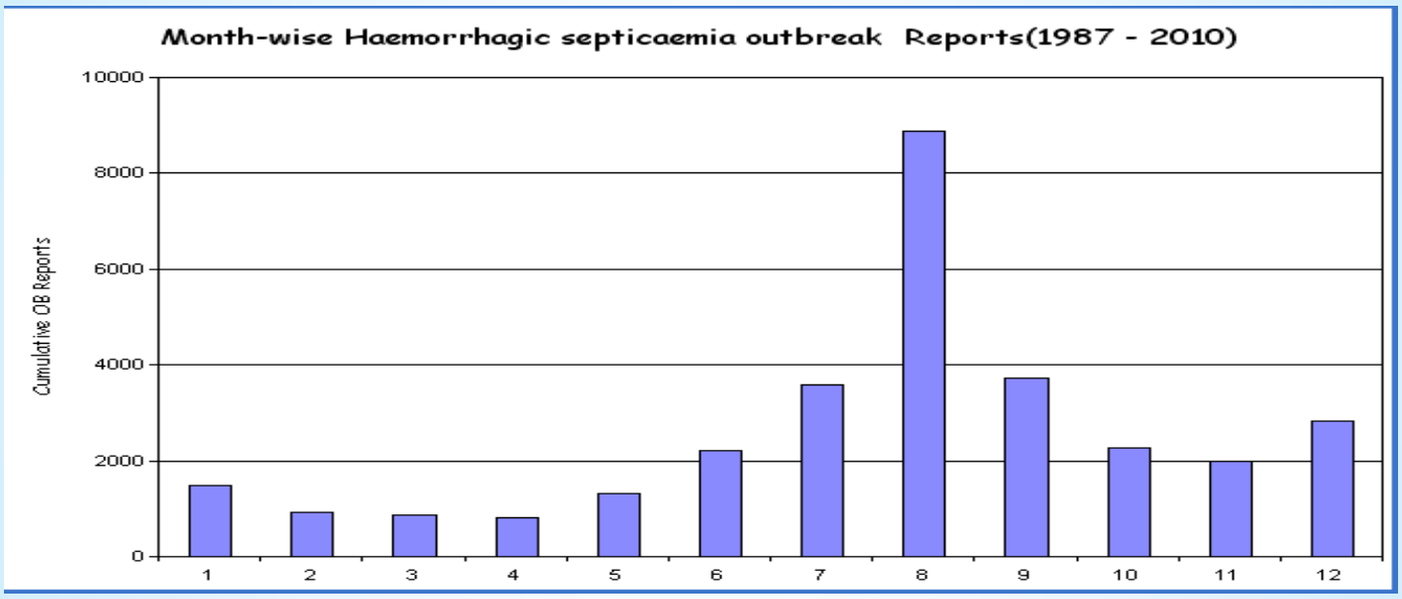
Dr H Rahman, JD, ICAR Research Complex for NEH Region, Sikkim took over as the Project Director, PD_ADMAS on 30th April, 2011. He is an eminent microbiologist having vast experience and expertise in wide range of subjects related to Veterinary Microbiology and Public Health. He has earlier worked as Head, Division of VPH, IVRI, Iztanagar. His significant contributions include development of technologies for detection of *Ecoli* infection in Pygmy Hogs, Pasteurellosis, BQ in large ruminants, and Classical swine fever infection in pigs. He has in-depth knowledge in epidemiological studies of livestock diseases. Dr H Rahman is a recipient of many awards and honors, has more than 160 publications including books, research papers, bulletins, etc. He handled more than 20 externally funded projects in different field of agriculture and animal sciences and credited with two patents. He visited different countries like Germany, Netherlands, Belgium, Italy, France, Bhutan, and Nepal and has been a visiting scientist of Robert Koch Institute, Germany. The PD_ADMAS staff welcomes Dr H Rahman wholeheartedly and looks forward for visionary leadership to take PD_ADMAS into newer heights.

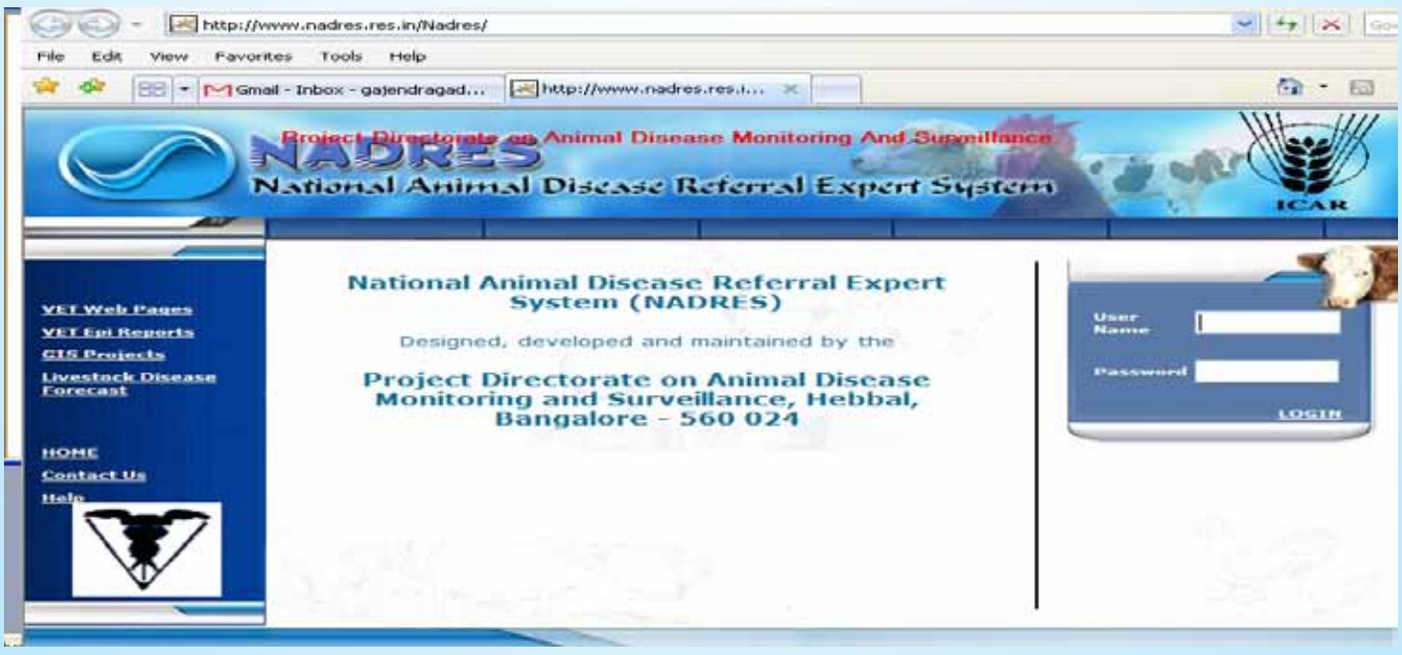

Livestock Disease Ranking (1987 to 2010) (excluding FMD)
Cumulative OB Reports
50000
40000
30000
20000
10000
0
47344
30916
17290
8525
7335
6117
6053
4852
4551
3511
2421
2041
Babesiosis
Haemorrhagic septicaemia
Black quarter
Bluetongue
Ascariasis
Peste des petits ruminants
Sheep & Goat pox
Enterotoxaemia
Theileriosis
Anthrax
Swine fever
Trypanosomiasis

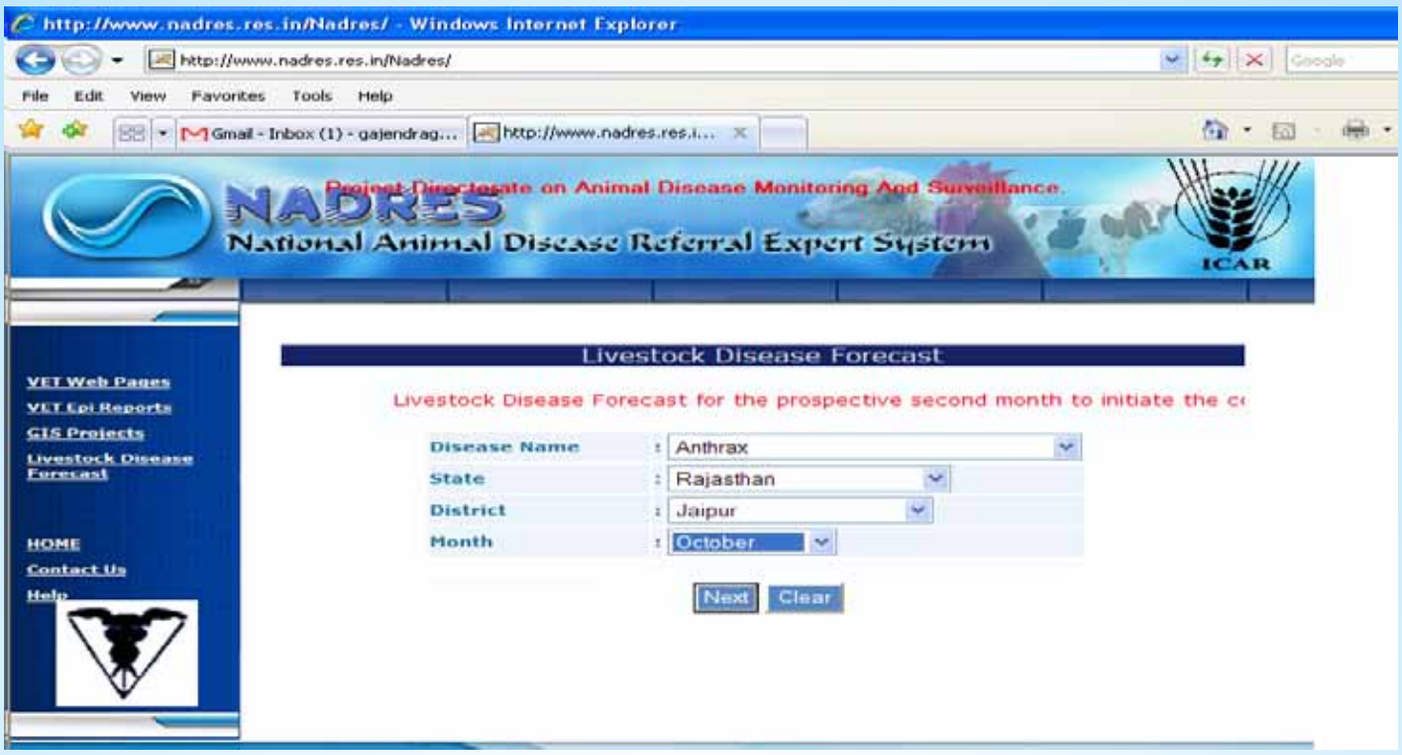

National Haemorrhagic septicaemia outbreak trend during last decade
Cumulative OB Reports
1600
1400
1200
1000
800
600
400
200
0
y = - 111.47x + 1426.3
R^2 = 0.8429
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010


National Cumulative Haemorrhagic septicaemia outbreak Reports (1987 - 2010)
Cumulative OB Reports
20000
17500
15000
12500
10000
7500
5000
2500
0
SZ
WZ
CZ
NZ
NEZ
EZ

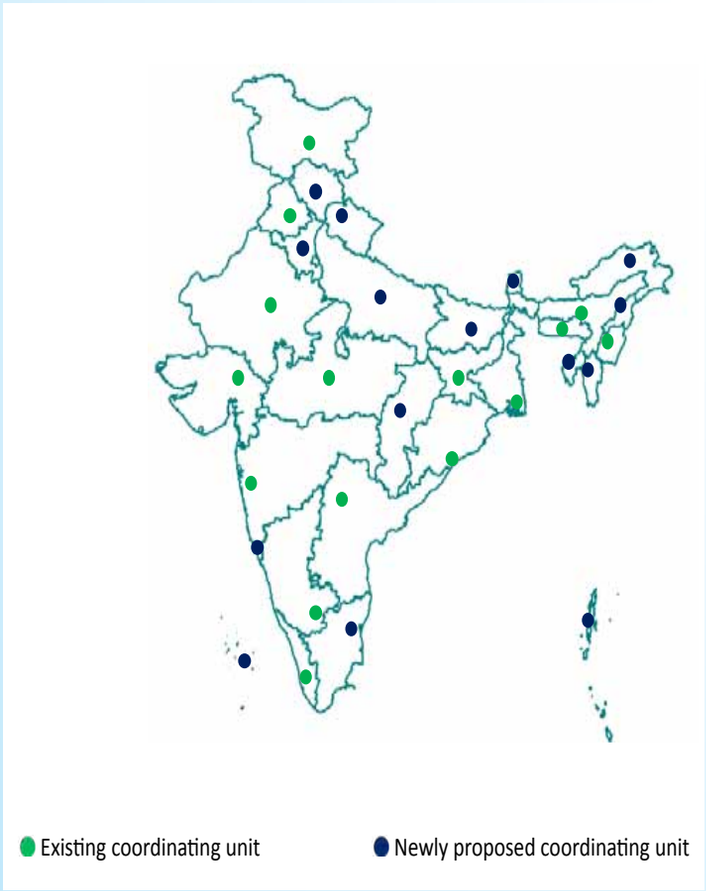

Top Ten States Reporting Haemorrhagic septicaemia outbreak (1987 - 2010)
Cumulative OB Reports
12000
10000
8000
6000
4000
2000
0
Andhra pradesh
Karnataka
Rajasthan
Gujarat
Maharastra
Chhattisgarh
Madhya Pradesh
Jammu and Kashmir
Bihar
West Bengal

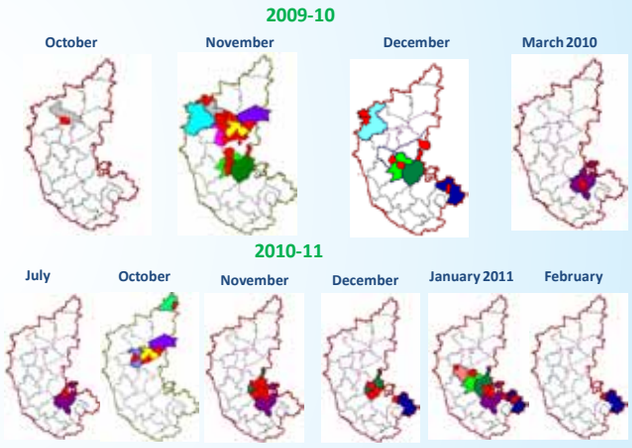

Month-wise Haemorrhagic septicaemia outbreak Reports(1987 - 2010)
Cumulative OB Reports
10000
8000
6000
4000
2000
0
1
2
3
4
5
6
7
8
9
10
11
12


http://www.nadres.res.in/Nadres/
File Edit View Favorites Tools Help
Project Directorate on Animal Disease Monitoring And Surveillance
NADRES
National Animal Disease Referral Expert System
ICAR
VET Web Pages
VET Epi Reports
GIS Projects
Livestock Disease Forecast
HOME
Contact Us
Help
National Animal Disease Referral Expert System (NADRES)
Designed, developed and maintained by the
Project Directorate on Animal Disease Monitoring and Surveillance, Hebbal, Bangalore - 560 024
User Name
Password
LOGIN



Coordinating Units of AICRP on ADMAS





BT outbreak maps for the year 2009-10 & 2010-11

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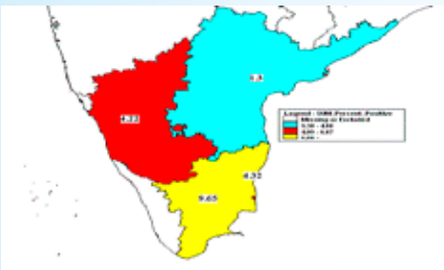
From the Director's Desk....

has also developed spreadsheet modules for economic impact analyses of various diseases causing abortions in livestock.

PD_ADMAS has the credit of developing the web page, NADRES (NADRES: www.nadres.res.in) which is made functional through ERNET facility. The NADRES will forecast the probability of the occurrence of a disease in a particular district two months in advance. The new sets of database were developed and maintained which include livestock disease profile, demography, livestock population profile, agro-ecological profile and meteorological profile. This knowledge is useful for the farmers, veterinarians and policy makers to control the disease.

Livestock disease profile

The disease profile data has been arranged with the linkage to zonal, state and district codes assigned to each zone, state and district, respectively. The data consists of number of attacks, susceptible animals, deaths and vaccinations with respect to each disease in a particular district with species of the animals involved, year and month of the outbreak. At present the data bank has a well documented 77,777 data pertaining to various livestock disease outbreak reports of the country from 1987 to 2010. The dynamic data in the databank is updated regularly after suitable validation.



Sero-prevalence of PPR in Bovine in Southern Peninsular India (Andhra Pradesh, Karnataka, Puduchery and Tamilnadu)

Scenario of Classical Swine Fever in India

A total of 1257 serum samples collected from Andhra Pradesh, Karnataka, Kerala and Maharashtra were assayed for the presence of antibodies against CSFV in domestic pigs. An apparent percent positivity of 19% was evident from the studies wherein, highest prevalence was in Andhra Pradesh (25%) and lowest was in Karnataka (12%). Screening of more number of pig serum samples from other parts of the country may provide national scenario on prevalence of CSF. For molecular epidemiology, seventeen classical swine fever virus (CSFV) isolates recovered during the period of 3 years (2006–2008) from India were subjected to nucleotide sequencing in the 5' untranslated region (UTR). For genetic typing, 150 nucleotides within this region were used. For better epizootiological understanding, 39 nucleotide sequences of the above region, including 13 Indian CSFV sequences, available either in the Gen Bank or published literature were also included in the study. Based on the phylogenetic analysis, the Indian isolates could be grouped in to two subgroups, viz., 1.1 and 2.2. The study also revealed predominance of subgroup 1.1 and involvement of viruses of more than one subgroup in an outbreak. Twenty three CSFV isolates including seventeen studied earlier in the 5'UTR region, recovered from field outbreaks in various parts of India during 2006-09 were used for genetic analysis in the NS5B region. Alignment of 409 nts along with phylogenetic analysis indicated the continued dominance of subgroup 1.1 strains in the country. Detailed analysis of a subgroup 2.2 virus indicated the plausible Chinese origin of this subgroup in India and provided indirect evidence of routes of CSFV movement within South East Asia region.

Sero-prevalence of PPR in bovines

Sero-prevalence of PPR in cattle and buffaloes was carried out during the period 2009-2010 using the serum samples randomly collected from different parts of Southern India. A total of 2548 serum samples {n=2159[cattle (1158) and buffaloes (1001)]; n=303 (sheep); n=86 (goat)}, were collected from Southern India and were screened for PPRV antibodies. Analysis of 2159 bovine serum samples indicates that an overall 4.58 % prevalence of PPRV antibody in cattle and buffaloes with overall percentage prevalence of antibody in Karnataka, Tamilnadu, Puduchery and Andhra Pradesh were 4.22, 9.65, 4.32, and 1.3, respectively. The presence of PPRV antibodies demonstrate that bovines are exposed to PPR infection naturally either directly or indirectly. Further, the percentage inhibition (PI) values obtained in competitive ELISA from cattle and buffalo samples was depicted in the distribution diagram, in which more number of positive cases was scattered between 40 and 60 %, which indicates the sero-prevalence of the PPR in cattle at basal level in most of the cases. It implies the importance of bovines as sub-clinical hosts for the virus besides widespread presence of the disease in sheep and goats in India. In all earlier studies, antibody sero-prevalence detected in cattle, buffalo and camel from different country confirmed natural transmission of PPR virus under field conditions from sheep and goats to bovines. The transmission of PPR from small ruminants to cattle may be dependent on the type of animal husbandry and possibly the strain of PPRV circulation in geographical areas. Further, systematic studies on sero-epidemiological aspect are to be planned to examine these factors in precipitation of disease in cattle and buffaloes including other ruminants.

Economics of reproductive disorders in bovines

Sample survey of organized dairy farms was carried out and selected organized cattle farms in Hubli, Dharwad, Bijapur in Karnataka and Pondicherry, Chennai in Tamilnadu for the study. Paired serum samples were collected from 128, 72, 123, 109 and 138 cattle in Hubli, Dharwad, Bijapur, Pondicherry and Chennai respectively. Reproductive history like repeat breeding, abortion, metritis, retention of placenta, pregnancy and milk yield data were collected from the organized farms. Feed and soil samples were also collected. Out of 570 Serum samples screened for Brucella and IBR antibodies, it was found 254 (44%) and 158 (27%) positive respectively. Serum copper and zinc levels were estimated and found zinc levels decreased in animals with reproductive problems. Feed analysis revealed that the crude protein, crude fat and metabolizable energy in concentrates and fodder fed to cattle were within the normal range. Soil analysis for mineral levels varied widely depending on the type of the soil in the organized farms. Economic analysis of the data showed the reproductive disorders are the major factor and out of which repeat breeding and abortion were causing the significant economic losses in the organized dairy farms.

Bovine neosporosis in southern India

In a sero-survey (n=2268) 12.61 and 9.97% sera samples were found positive for the presence of *Neospora caninum* antibody respectively among cattle and water buffaloes in Karnataka and A.P. Significantly ($p<0.05$) higher prevalence was found in the cattle in unorganized herds in comparison to organized herds. The highest seroprevalence was recorded in the age group of 4 years and above in both type of cattle herds and water buffaloes. There was a significant variation of seroprevalence ($p<0.05$) observed between different age groups of cattle. The rate of seroprevalence increased with the increment in the age of the animals suggesting a possibility of horizontal mode of transmission of the infection from the environment. The percentage of abortion history was significantly higher in seropositive group in comparison to the seronegative group and the seropositive cattle were 8.84 times more likely to experience abortion than the seronegative cattle. The occurrence of abortion among different age group varied significantly ($p<0.05$).

Cumulative Seroprevalence of Bovine Herpes Virus-1

During the year 2010-11 a total of 1453 serum samples were screened for the presence of anti-BoHV-1 antibodies using indirect ELISA (PD_ADMAS Kit). The overall prevalence of IBR wasfound to be 36% cumulative study (1995-2010). 57009 serum samples from different parts of the country were tested by ABELISA during these years and 20749 samples were found positive. The variation in the overall prevalence of IBR may be attributed to the sample size.

Surra

An enzyme amplification based diagnosis has been developed to detect carrier status of surra with a sensitivity of 0.15 trypanosomes/ml of blood. This method has been developed targeting VSG RoTat1.2 gene. Due to its high sensitivity, the method is very useful to detect the carrier status when conventional blood smear technique is not able to detect the infection. Diagnostic services have been given to the farmers, field veterinarians, zoo and national park authorities for controlling the disease. The infectivity of the isolates plays a vital role in the epidemiology of the disease. A comparative pathogenecity of four isolates-bubaline, canine, lion and leopard isolates were studied. The bubaline was found most pathogenic one.

Cumulative Seroprevalence (%) of IBR in Bovines during 1996-2011

Indirect ELISA for screening Brucellosis in sheep and goats

Brucellosis transmitted from small ruminants poses a higher risk to humans than brucellosis transmitted from cattle. Therefore efforts are needed to diagnose the disease in goats and sheep using sensitive screening tests to obtain seroepidemiology of the disease.

An indirect ELISA (iELISA) has been standardized using smooth lipopolysaccharaide (sLPS) antigen from *Brucella abortus* S99 and hyperimmune serum (HIS) raised against sLPS in sheep. The percent positive (PP) less than 54 and PP >54 were set as negative and positive, diagnostic cut-off PP, respectively for the assay. The relative diagnostic sensitivity and specificity in comparison to commercial kit (VMRD kit) were found to be 95.66% and 96.33%, respectively. In the cross reactivity study, *E. coli* (O157 H7), 17 salmonella and five *Y. entericolitica* serotype specific sera tested negative by the developed iELISA. In intra-institutional and inter-institutional validation, 92% and 95% agreements with our laboratory results respectively were obtained.

The developed assay was applied to screen anti-*Brucella* antibodies in goats (n=2362) and sheep (n=1702) from different states of India and seroprevalence was found 8.85% (209/2362) in goats and 6.23% (106/1702) in sheep. The highest seroprevalence was recorded in goats of Madhya Pradesh and Bihar and in sheep population of Karnataka and Rajasthan, states respectively. The preliminary results obtained in this study will lead to the development of iELISA kit for screening of brucellosis in small ruminants and to generate sero-epidemiological data of the disease in India. The kit is ready for distribution to institutions.

Phylogenetic analysis of *rpoB* of Leptospira

PD_ADMAS has a unique place in the field of Leptospira research in the country. The research activity in leptospirosis since inception of institute has led to development of a simple *Leptospira* staining kit, transport medium for leptospira isolation, isolation of a large number of leptospira isolates from diverse animal and human hosts.

Phylogenetic analysis of *rpoB* sequence of 52 *Leptospira* isolates revealed that 31, 8 & 13isolates belong to *L. borgpetersenii* / *L. interrogans*, *L. kirschneri* and *L. inadai* species subgroup/subspecies, respectively with a percentage prevalence of 31.3, 8 & 13. This could be useful in selection of panel of antigens to be used in the MAT at different geographical location to the extent possible. Further, study is required to characterize the *Leptospira* isolates, which branched separately in to subgroup/subspecies under the *L. inadai* species, to know the exact new species of *L.inadai* subgroup/ subspecies isolates.

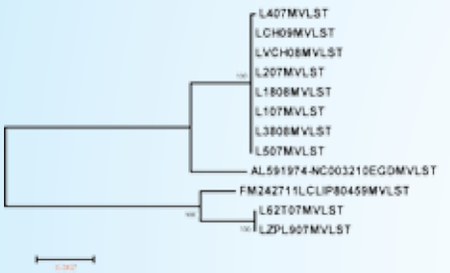
Multiplex PCR for rapid identification of ten major mastitis pathogens

The annual economic losses due to Bovine mastitis was estimated to be Rs. 7165.51 crores in India, out of which 57.93% (Rs. 4151.16 crore loss) has been attributed to sub-clinical mastitis. Control of bovine mastitis is constrained because of multiple etiological agents. A rapid, sensitive and specific diagnostic method capable of simultaneously detecting multiple causative agents is essential for surveillance and monitoring of udder health. Among the various mastitis pathogens, majority of the intramammary infections are caused by *Staphylococcus aureus,* Coagulase-negative staphylococci, *Escherichia coli, Streptococcus agalactiae, Streptococcus uberis* and *Streptococcus dysgalactiae*. A novel mPCR assay for detecting ten most common mastitis pathogens viz. *Staph. aureus, Staph. chromogenes, Staph. haemolyticus, Staph. epidermidis*, *Staph. sciuri, Staph. simulans, Strep. agalactiae, Strep. dysgalactiae, Strep. uberis* and *E. coli* was developed and evaluated using the DNA extracted directly from milk samples. The assay functions in two tube format with five species detected in each tube, making identification possible in 6h. The test was sensitive enough with ability to detect 10fg of genomic DNA and 10 CFU/ml of milk. It was also 100% specific when validated using 57 ATCC reference strains belonging to *Staphylococcus* sp, *Streptococcus* sp, other genera under *Enterobacteriaceae* and 705 field strains of *Staphylococcus* sp, *Streptococcus* sp and *E. coli.* The mPCR developed will be very useful in dairy sector, diagnostic centres and research units not only to identify the predominant causative agents but also to follow up the treatment and control measure in the herd.

Common ELISA for diagnosis of brucellosis in livestock and humans : A new diagnostic approach for brucellosis

In order to overcome the problem of using different ELISA protocols, a common ELISA for the detection of antibrucella antibodies in both livestock and human using recombinant protein G (commercially available) which reacts with immuoglobulins of different species like cow, sheep, goat, swine, human, was standardized using smooth lipopolysaccahride antigen from *Brucella abortus* S99, anti-*Brucella* sLPS hyperimmune sera raised in pigs and recombinant protein G conjugated with Horse Radish Peroxidase.

On comparative evaluation of 400 sera samples (50 each positive and 50 negatives from cattle, sheep and goat, pig and humans), the diagnostic sensitivity of the test varied from 100% in pigs followed by 92% in both human and small ruminants and 88% in cattle. The diagnostic specificity ranged from 100% in humans and cattle and 96% in pigs and small ruminants. Brucella organisms infect multiple species and diagnosis by ELISA using separate test protocols and to maintain the reagents and quality is difficult. In such situation, a common ELISA protocol for screening both human and animal population in the country is desirable to avoid multiple tests for the diagnosis of most important zoonotic disease brucellosis.



Neighboring–joining tree of 10 *L. monocytogenes* strains. The tree was constructed on the basis of the number of nucleotide differences in the seven virulence gene fragments analyzed. Bootstrap values are shown at the interior branches of the node.

Interactions with FAO Experts

1. An insight into field epidemiology: One day seminar was organized on 20-11-2010 wherein FAO experts, Dr Leo Loth, Chief Technical Advisor, Emergency Center for Transboundry Animal Diseases (ECTAD), FAO, India and Dr David Castella, Scientist from Canada gave a detailed picture of the importance of field epidemiology in livestock disease surveillance.
2. Dr Paul White, Spatial Epidemiologist and International GIS expert, FAO India and Dr Akiko Kamata, FAO expert interacted with the scientists of PD_ADMAS regarding livestock disease clustering, mapping and compared with TAD info, during 27-29, April, 2011.

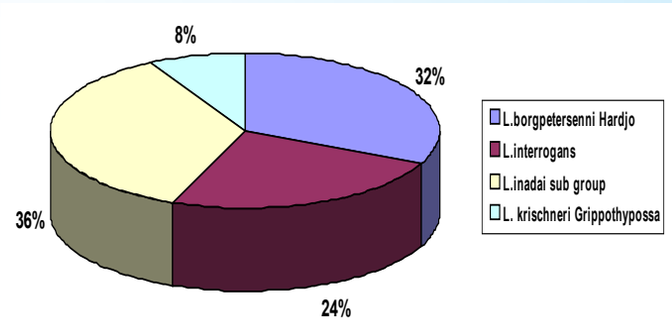
Interactive Meet with key persons in various Departments of Animal Husbandry and Veterinary Services, Govt. Karnataka, Karnataka Veterinary Animal Fisheries Sciences University (KVAFSU) and all the animal science institutes of ICAR within Bangalore.

First Meeting of the 3rd Quinquennial Review Team

Discussion on prevalence of CSF during the visit of Prof. K. M. L. Pathak, DDG (AS) ICAR

Promotions /Transfers/New Joinings

1. Shri N Narayanaswamy, UDC got promoted as Assistant on 30th October, 2010
2. Smt Padmini, LDC, got promoted as UDC on 1st November, 2010
3. Shri A Srinivasmurhty, AF & AO of this institute, upon promotion as FAO, was relieved on 04th March, 2011 so as to join in IIHR, Bangalore
4. Shri PNM Nair, Administrative Officer, joined this institute 09-05-2011 on transfer from IISR, Calicut
5. Shri. R. K. Babu, AF&AO joined this institute on 23rd May, 2011 on transfer from ICAR for Eastern Region Patna.
6. Smt Uma M.S, Personal Assistant joined this institute on 13th June, 2011 on promotion from NIANP (deputation), Bangalore



Prevalence of Leptospirosis in Bovine Population

Distinguished visitors

Dr S Ayyappan, Secretary DARE and DG ICAR, New Delhi

Dr K M L Pathak, DDG(AS), ICAR, New Delhi

Dr Gaya Prasad, ADG(AH), ICAR, New Delhi

Dr C S Prasad, VC, Maharashtra University of Animal Science and Fisheries, Nagpur

Dr Lal Krishna, Former ADG(AH), ICAR, New Delhi

Dr B Pattnaik, Project Director, PD_FMD, Mukteswar-Kumaon

Dr N V Patil, Director, NRC on Camel, Bikaner, Rajasthan

Dr R N Sreenivasa Gowda, Former VC, KVAFSU, Bangalore

Dr M Rajasekhar, Former Project Director, PD_ADMAS, Bangalore

Dr Leo Loth, FAO, Rome

Dr David Castellan, FAO, Rome

Dr M Moni, DDG, NIC, New Delhi

Dr Vishnu Bhat, Fisheries Development Commissioner, DADF, New Delhi

Dr S K Bandyopadhyay, Sr Tech. Co-ord. ECTAD

Dr N SriRanganathan, Prof, Virginia Tech University

Meeting of Institute Biosafety Committee (IBSC)

The 3rd IBSC meeting was held on 25-06-2011 and was chaired by the Dr H Rahman, Director of the institute. The external members, Dr S G Ramachandra, IISc, Bangalore, Dr VVS Suryanarayana, PS, IVRI-DBT Nominee, Dr Sakey Srinivas, Medical Officer from IVRI, Bangalore attended the meeting. Dr P P Sengupta, Sr Scientist as member secretary briefed about agenda and activities of the institute.

Awards/Recognitions/Fellowships

1. Dr H Rahman, Project Director is awarded with DBT-CREST Fellowship as a visiting scientist to University of Fribourg, Switzerland
2. Dr B R Shome, Principal Scientist has been awarded a Fellow of Indian Association of Veterinary Public Health -2011 at Veterinary College, Mumbai
3. Dr B R Shome, Principal Scientist and his team got the Best Poster Award (1st Place)-2011 at International Conference conducted by IAVMI at Bangalore
4. Dr Divakar Hemadri, Principal Scientist has been nominated as Sectional Editor of Indian Journal of Virology published by Springer.
5. Dr Rajeswari Shome, Sr Scientist, awarded a DST-travel grand to attend "One Health Conference" held during 11-14th February, 2011 at Australia.
6. Dr PP Sengupta, Sr. Scientist received the "Best Poster presentation" award in the year 2007 by the Indian Association for the Advancement of the Veterinary parasitologist at SKUAST, Jammu.
7. Dr PP Sengupta, Sr. Scientist received the Egyptian International Centre for Agriculture (EICA) fellowship by the Govt. of Egypt in 2007
8. Dr V Balamurugan, Sr Scientist and his team got the Best Poster Award (2nd Place) by in the International Conference - 2011 conducted by IAVMI at Bangalore
9. Dr S S Patil, Scientist was felicitated with Fellow Award-2010 by the Society for Applied Biotechnology, Dharmapuri (TN)
10. Dr S S Patil and his team were conferred with Team award for the best paper presented in the International Conference - 2011 conducted by IAVMI at Bangalore
11. Dr P Krishnamoorthy, Scientist as a member of a team which was conferred with ICAR outstanding multidisciplinary Research Team Award 2010 by ICAR New Delhi
12. Dr Mohammad Mudassar Chanda was awarded the BBRC/DFID/Scottish initiative- Indo-UK studentship to persue his Ph.D., programme.
13. Dr Jagadish Hiremath, Scientist was awarded with ICAR International Fellowship 2010-11 to persue his Ph.D., programme

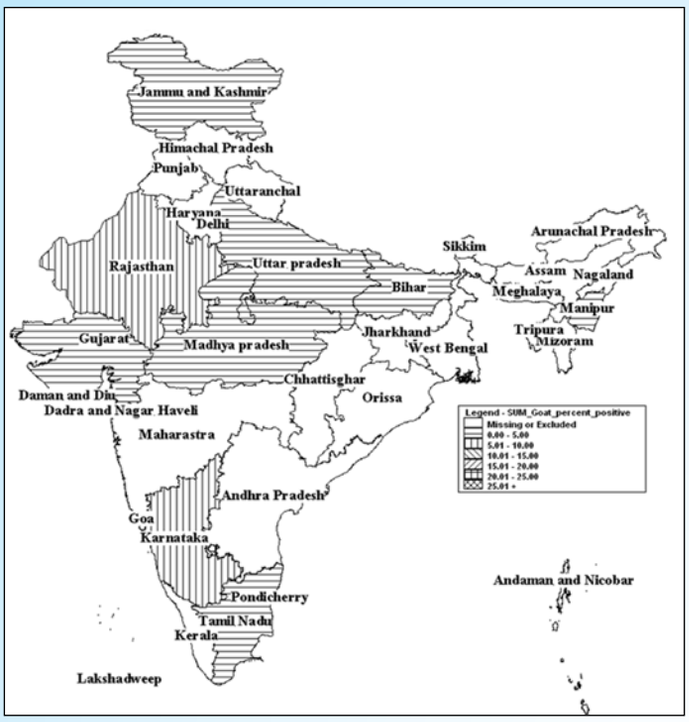
PD_ADMAS bids farewell to Dr. K. Prabhudas

Dr. K. Prabhudas, served the Directorate in the capacity of Project Director from 2002-2011. His contributions in chiselling the directorate to a finer shape is highly acknowledged. He was superannuated on 30th April, 2011. All the Staff of PD_ADMAS wish him a very happy and peaceful retired life.

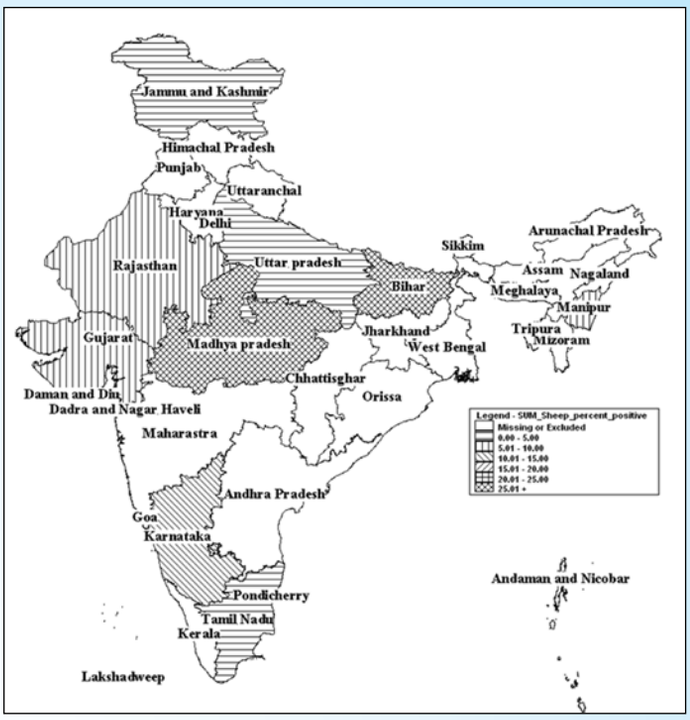
PD_ADMAS bids farewell to Mrs. N. Padmini

Mrs. N. Padmini born on 2.4.1951. She joined ICAR service in 6.12.1980 as a Literate Grade I and promoted to the post of LDC on 30.8.1996. She served NDRI, Bangalore till 28.2.2007 and joined PD_ADMAS on 1.3.2007. She was promoted to the post of UDC on 1.11.2010. She was very co-operative to all the staff of PD_ADMAS. She retired from her service on 30.4.11. All the staff members wish her also a very happy and peaceful retired life.

Seroprevalence of brucellosis in Sheep by iELISA



Seroprevalence of brucellosis in Goats by IELISA



Geographical locations from which the BT suspected samples were collected by PD_ADMAS team

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