



Proposed design of new building of PD_ADMAS at Yelahanka, Bangalore



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किसानों का हमसफर
भारतीय कृषि अनुसंधान परिषद

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From the Director's Desk....

Reducing the risk of introduction of disease and improving early detection of the disease will enhance animal disease surveillance system that improves the control strategies of livestock diseases. It is important to communicate the outcome to the stakeholders thereby establishing the strong network of monitoring system in the livestock epidemiology. The epunit of the surveillance programme is the village livestock population which depicts the real picture of the disease outbreak scenario. It is evident from the livestock census that, over a period of time, compounded annual growth rate of cross bred sheep is -8.22, camel is -3.94, pigs is -3.81 and that of mithuns is -1.03. Such negative trends may be attributed to various factors like difficult geographical terrain, occurrence of diseases, lack of availability of fodder, diagnostics and vaccines at appropriate time and adverse climatic factors. Then comes the Animal Disease Informatics to tackle such issues and it needs a vast networking system from Dirang (Arunachal Pradesh) to Palode (Kerala).

To achieve this, the Directorate is working in a collaborative mode by having network with state disease diagnostic labs, local farmers and state veterinary universities. The Directorate is extending its AICRP to 16 more centers located in different parts of the country to enrich the existing database. The anticipated outcome of overall programme is to reduce the animal disease burden on the livestock farmers thereby alleviating the poverty.

Training cum Workshop on Animal Disease Informatics

The Directorate conducted a training on "Animal Disease Informatics" from February 28-March 5, 2012. The training was conceptualized by Dr. K.M.L. Pathak, DDG (AS), ICAR during the XIX Annual Review Meeting of AICRP_ADMAS held at Jaipur. The Principal Investigators of AICRP_ADMAS from 12 States participated in the training programme. Dr. H. Rahman, Project Director briefed about the training programme and explained about the concept of disease informatics and gave overview of surveillance of economically important livestock diseases in the country. Experts like Dr. M. Moni, DDG (NIC), Delhi, Dr. R. Venkataramanan, JD (IVRI), Bangalore, Dr. G. Gongal, Medical Officer, WHO Reference Center, New Delhi, Dr. Thirunavukkarasu, Chennai, Dr. A. Rao, IASRI, Delhi, Dr. S. Srinivas, NBSSLUP and Dr. P. D'souza, KVAFSU, Bangalore talked on different aspects of disease informatics. A well structured interactive lectures on different topics like Research Intelligence in Epidemiology, NADRS of Govt of India initiative, International surveillance of transboundary animal diseases, GIS concepts, Sample survey and sampling frame, Surveillance of vector borne diseases, Investigation of animal disease outbreaks and their recording, Economic analyses of livestock diseases and many others were covered. Dr. S.K. Das from Assam spoke at the valedictory programme that such refreshing courses are the need of the hour. He was of the opinion that such trainings should be conducted every year. The training concluded with remarks by Dr. N.K. Krishnakumar, Director, NBAII, Bangalore.



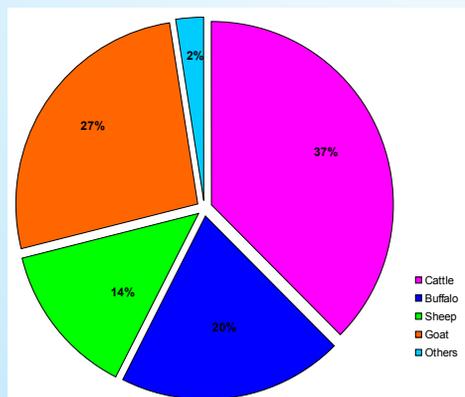
Compound Annual Growth Rate of Livestock (CAGR) in India

Category of Livestock	1982-87	1987-92	1992-97	1997-2003	2003-07
Cross Bred cattle	13.64	5.93	5.73	4.20	6.01
Indigenous cattle	11.42	0.12	-1.14	-2.14	0.68
Buffalo	1.71	2.08	1.32	1.72	1.47
Total Bovine	8.25	0.94	0.00	-0.40	1.46
Cross Bred Sheep	3.89	5.53	5.22	13.00	-8.22
Indigenous Sheep	-1.43	2.22	2.37	0.49	4.00
Goats	2.96	0.90	1.26	0.27	2.48
Horses and Ponies	-2.40	0.50	0.24	-1.91	-4.04
Mules	8.91	2.94	2.75	-4.45	-4.89
Donkeys	-1.74	0.61	-1.82	-5.92	-6.76
Camels	-1.47	0.59	-2.42	-7.07	-3.94
Pigs	1.08	3.77	0.77	0.34	-3.81
Yaks	-22.41	10.01	0.34	1.96	5.01
Mithuns	-	-	2.59	9.70	-1.03
Total Livestock	5.38	1.15	0.61	-0.02	1.78

Projected Livestock population ('000 numbers)

Category of Livestock	2007*	2011	2012	2015	2020	2025
Cross Bred cattle	33060	40923	43266	50422	65299	84870
Indigenous cattle	166015	165065	164935	163387	161369	159607
Buffalo	105344	108490	109316	111638	115601	119593
Cross Bred Sheep	3730	3981	4047	4047	4047	4047
Indigenous Sheep	67828	68466	68629	69410	70732	72055
Goats	140537	141029	141155	141401	141808	142228
Horses and Ponies	611	611	611	611	611	611
Mules	137	161	168	168	168	168
Donkeys	458	458	458	458	458	458
Camels	517	517	517	517	517	517
Pigs	11134	11746	11905	11905	11905	11905
Yaks	83	74	71	71	71	71
Mithuns	264	264	264	264	264	264
Total livestock	529718	541785	545342	554299	572850	596394
Poultry('000 birds)	648830	728662	750111	854783	1062690	1321164

*Actual population figures as per Livestock census of India



Percentage composition of livestock population in India (2007)

MoU on Contractual Research Project under Public Private Partnership

An MoU was signed on 06.06.2012 with M/s Intervet India Pvt Ltd., Pune on Contractual Research Project on “Study to determine the incidence of Bovine viral diarrhoea in India and its importance in the dairy industry” under Public Private Partnership in collaboration with HSADL, Bhopal. The project aims on identifying the BVDV antibodies and their types in dairy farms in India.



Meeting on Contractual Research Project on BVD under PPP mode with M/S Intervet India Pvt Ltd, Pune at PD_ADMAS, Bangalore.

National Control Program on Brucellosis (NCPB)

A national initiative mooted by Dept. of Animal Husbandry, Dairying and Fisheries (DADF) to control brucellosis in the country. PD_ADMAS has been entrusted to provide ELISA kits to States and Union Territories, to confirm/verify suspected samples and to train officers on the diagnosis and control of the disease.

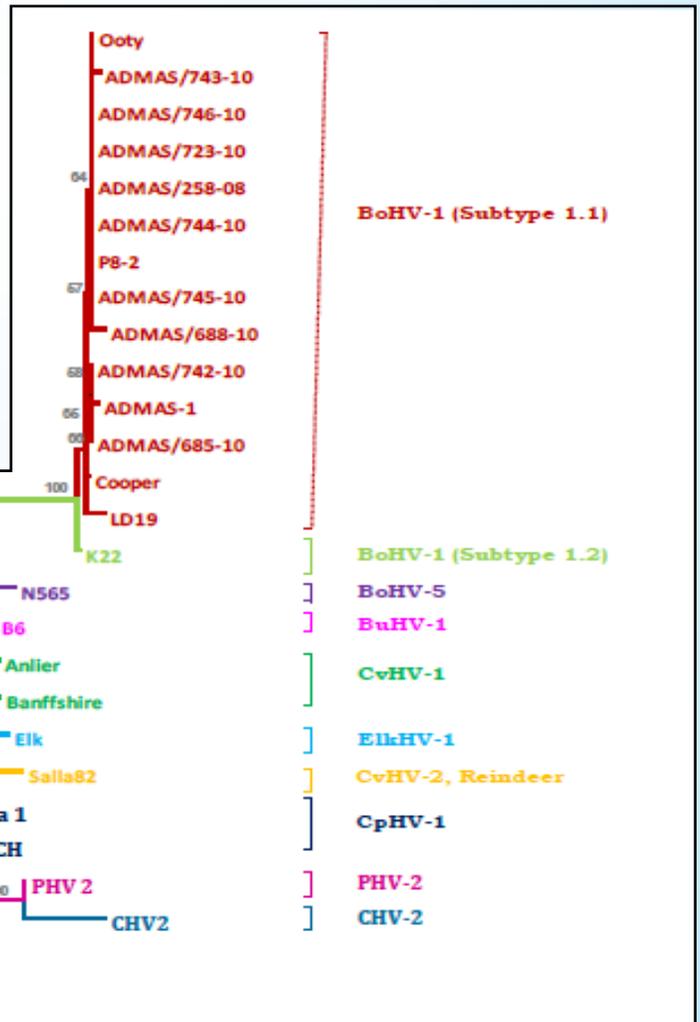
Under the programme, first sensitization training conducted on 30.03.12, where in 32 officers from Karnataka Milk Federation (KMF) attended the Programme. The training covered the impact of brucellosis on livestock and human beings, the importance of National Control Program on Brucellosis and the measures like vaccination to be adopted for the control of the disease.

Second training programme conducted on 24.05.12 was attended by Director, Additional Director and 72 Deputy Directors of Animal Husbandry Department, Karnataka. In this training program, stressed the need for biannual screening of milk samples for brucellosis and Calfhood vaccination strategies and safety measures.



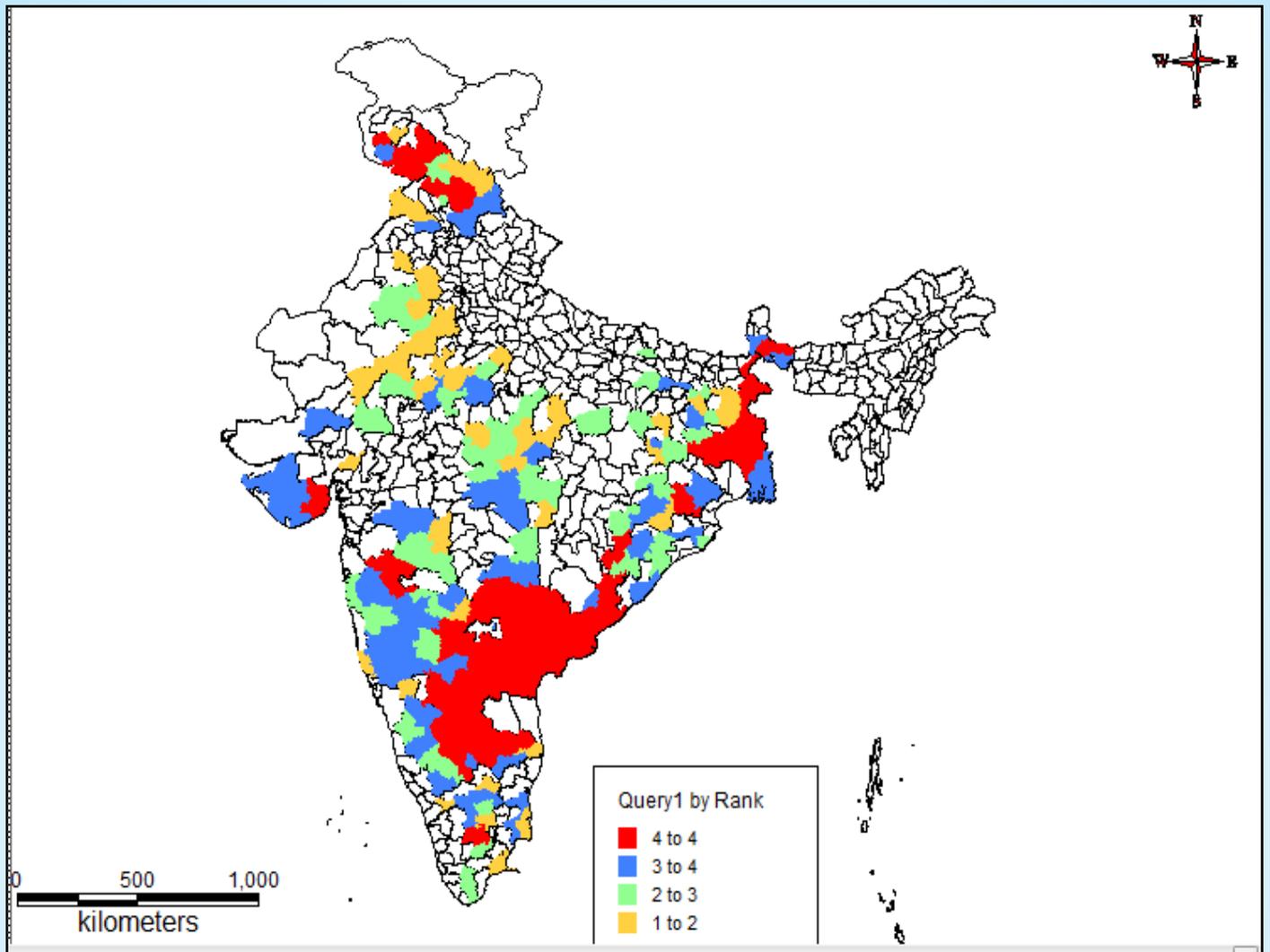
Expert Panelist visited NBFGR, Lucknow

Dr. M. R. Gajendragad, Principal Scientist, PD_ADMAS presented a lead paper on "Animal Disease Monitoring and Surveillance" at the "National consultation on Development of Surveillance programme for aquatic animal diseases" held at NBFGR, Lucknow and participated as a panelist in the discussion on April 17 & 18, 2012

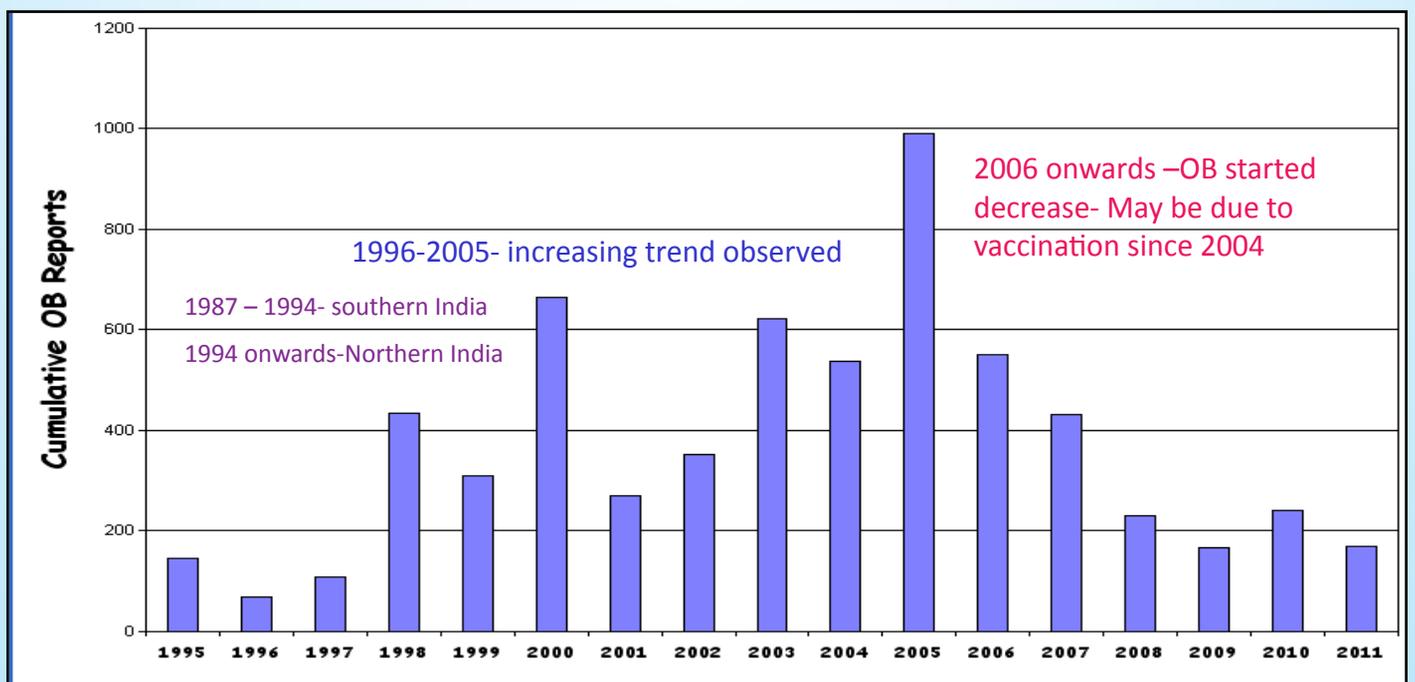


Neighbour Joining tree showing grouping of Indian BoHV-1 isolates with other Herpes Viruses. The number at the nodes indicate bootstrap (1000 replicates) values. Only values above 50% are shown.

Endemicity of PPR in different districts of India



PPR outbreaks status in sheep and goats in India from 1995 to 2011



Tribal Sub Plan (TSP) Project implemented

The TSP project was implemented through AICRP on ADMAS centre of PD_ADMAS located different states in the country in the country. In Karnataka the project was implemented at Soligaradoddi and Muthathi villages in Malavalli taluk of Mandya District in Karnataka. A participatory rural appraisal was conducted with assistance from AWAKE, NGO, Bangalore and identified the Scheduled tribal villages. A field day/ awareness programme was conducted for the tribal farmers selected under the TSP project on 28th January 2012. The objectives of the project and programme implementation were discussed with farmers. 240 Bannur breed of sheep (60 Rams + 180 Ewes) from Karnataka Sheep and Wool Development Corporation Limited, Government of Karnataka were procured. One Sheep unit (one Ram + three Ewes) was distributed to each of the selected beneficiary of the two villages and a total of 60 beneficiaries were given (16 from Soligaradoddi + 44 from Muthathi villages). A Training programme on “Entrepreneurship Development in Animal Husbandry” was conducted to the beneficiaries from the two villages in three batches on 5-7th, 12-14th and 15-17th March 2012 by AWAKE and PD_ADMAS, Bangalore. Random blood samples from the sheep distributed were collected to check for the health status. The forty one sera samples were screened for brucellosis, PPR antibodies and were found negative.



Scientists distributing the sheep to selected beneficiaries under the Tribal Sub Plan Project at Soligaradoddi, Mandya, Karnataka.



Scientists of PD_ADMAS conducted training programme on “Entrepreneurship Development in Animal Husbandry” under TSP for farmers.



Participants of PD_ADMAS in ICAR inter-institutional tournament (Zone-IV) from 27.02.12 to 02.03.12, NAARM, Hyderabad.

World Veterinarian Day celebrated

The ‘World Veterinarian Day’ was celebrated on 28.04.12 at PD_ADMAS, Bangalore with Dr. Medha Joshi, Head, Quality Assurance, Health Sciences, Gokula Education Foundation (M), Bangalore as chief guest. Dr. Medha delivered a lecture on “Antimicrobial Resistance in Man and Animals”. Dr. M. R. Gajendragad, Principal Scientist presided the function.



PD_ADMAS Scientists with Dr. Medha Joshi, Head, Quality Assurance, Health Sciences, Gokula Education Foundation (M), Bangalore during celebration of “World Veterinarian Day” on 28.4.12 at PD_ADMAS, Bangalore.

Bio-statistical Methods for Livestock Disease Informatics

Disease registries or informatics are collections of secondary data related to animal diseases with a specific diagnosis, condition, or procedure, and they play an important role in animal disease monitoring and surveillance. Bio-statistical methods helps to provide the methods to calculate necessary for presentation of the disease registries.

Methods for the study of Incidence

Incidence rate: The major concern of population-based animal disease registries will be the calculation of disease incidence rates and their use to study the risk in the registry area compared to elsewhere, or to compare different subgroups of the population within the registry area itself. Incidence expresses the number of new cases of animal disease which occur in a defined population of disease-free individuals, and the incidence rate is the number of such

events in a specified period of time. Thus:

$$\text{Incidence rate} = \frac{\text{Number of new cases of disease}}{\text{Animal population at risk}} \times \text{time}$$

This measure provide the direct estimate of probability of risk of illness and is fundamental importance of epidemiological studies.

Since incidence rates relate to a period of time, it is necessary to define the exact date of onset of a new cases of disease. Although this does not correspond to exact time of onset of disease, other possibilities are less easy to define in a consistent manner- for example date of onset of symptoms, date of entry to veterinary hospital or the date of treatment.

Period of observation: The true instantaneous risk of disease is given by the incidence rate for an infinitely short time period, the instantaneous rate or force of morbidity. With longer time periods the population-at-risk becomes less clearly defined (owing to births, deaths and migration) and rate itself may be varying with time.

Population at risk: In epidemiological cohort studies relatively small population of individuals on whom the information has been collected about the absence or presence of risk factors are followed up. There will inevitably be withdrawal of individuals from the group under study (owing to death, migration, inability to trace) and often new individuals will be added to the cohort. The result is that animals under observation at risk of disease for varying period of time.

Methods for study of proportion:

Percentage (relative) frequency: If the population from which the cases were registered are drawn is unknown, it is not possible to calculate incidence rates. In these circumstances the different case series must be compared in

terms of the proportionate distribution of different types of disease. The usual procedure is to calculate the percentage frequency or relative frequency of a disease relative to the total.

$$\text{Relative frequency} = R/T$$

R=Number of cases of disease of interest in the study group

T=Number of cases of disease (of all sites) in the study group

An alternative is the ratio frequency where each disease is expressed as a proportion of all other diseases, rather than a proportion of total.

$$\text{Ratio frequency} = \frac{R}{T-R}$$

Comparison of relative frequency may take place between registries, or within a registry, for example, between different geographical area, different breeds, or different time periods.

Patent Granted to PD_ADMAS

Patent on “*Indirect-ELISA for sero-screening of brucellosis in sheep and goat*” was granted by Indian patent on 20.01.2012 (Patent No 250709). Indirect ELISA was developed in the Institutional funded project “Study on epidemiology and bacterial etiology of infectious abortions in livestock with special reference to brucellosis.” The inventors are Dr. Rajeswari Shome, Dr. B.R.Shome, Dr. M. Deivanai and Dr. K. Prabhudas. The technology is commercialized as ELISA kit and it is available from the Institute.



DBT workshop on Development of Brucellosis Translational Research Program

The DBT workshop on Development of Brucellosis Translational Research was held on 20 – 21 March, 2012 at PD-ADMAS, Bangalore under the chairmanship of Dr. S. R. Rao, Advisor, DBT. The workshop was attended by Dr. H. Rahman, Project Director, PD_ADMAS, Dr. Barun De, Senior Scientist, OID/ CD, Atlanta, USA, Dr. Ramesh Vemulapalli, Professor, School of Veterinary Medicine, Purdue University, USA and Dr. Harsha Vardhan Batra, Scientist 'G', DFRL Mysore, Dr. A. K. Sinha, Senior Research Officer, National Disaster Management authority, New Delhi, Dr. Padma Singh, Scientist 'C' DBT and 15 Principal investigators from different organizations.

Recognizing the contribution made by the PD_ADMAS on brucellosis for past two decades, the ADMAS is selected as the Project Monitoring Unit (PMU) managed by the Project Director Dr. H. Rahman to oversee the Network Project activities. Dr. Rajeswari Shome, Senior Scientist, has been nominated as Project Coordinator for the working Group-I consisting of Molecular Epidemiology, National Repository and Bioinformatics.



DBT sponsored workshop on “Brucella Translational Research Programme” from 20.03.12 to 21.03.12 at PD_ADMAS, Bangalore.



Thanks giving party on occasion of superannuation of Mr. P.N.M. Nair, A.O, on 31.05.12 at PD_ADMAS, Bangalore.



Director and Scientists of PD_ADMAS having discussion with the officials of NDDB regarding the construction of new laboratory building at Yelahanka, PD_ADMAS, Bangalore.

PD_ADMAS Scientists attended FAO training programme at Bangkok

Dr. D. Hemadri, Principal Scientist and Dr. V. Balamurugan, Sr. Scientist participated in FAO sponsored training cum workshop on TADinfo and GIS/Spatial Epidemiology at Bangkok, Thailand from 24.01.12 to 31.01.12. Scientists from different SAARC countries viz., India, Pakistan, Nepal, Bhutan, Srilanka, Afghanistan, were participated. The main objectives of the training workshop were to impart hands on training in TADinfo software to management of the data base system and in GIS/spatial epidemiology for the analysis of spatial epidemiological data. The workshop facilitated by a TADinfo expert from FAO head quarter and a consultant for GIS component. TADinfo database training covered five modules which include observation, abattoir, census, active surveillance, vaccination modules apart from system configuration, data management etc., In GIS /spatial epidemiology, basic training about GIS, spatial analysis of animal disease data and the use of analysis for epidemiological work were given to participants.



High Level Expert team attended Avian Influenza investigation in Tripura

A high level expert committee constituted by Dept of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, GOI, under the chairmanship of Dr. H. Rahman, PD, PD_ADMAS, Bangalore with Dr. A.B. Negi, National Project coordinator and Dr. C Tosh, Sr. Sci., HSADL, Bhopal, along with Team members Dr. John weaver, Chief Technical advisor and Dr. Madhur Dhingra, National Consultant (Epidemiology) FAO, India visited Tripura to study the details of the recurrence and epidemiology of avian influenza especially in the government farms in Tripura during 17.04.12 to 20.04.12.



A high level expert team investigating avian influenza in the govt farms in Tripura during 17.04.12 to 20.04.12.

Professors from University of Nottingham, UK visited PD_ADMAS

Prof. Laura Green and Dr. Jasmeet Kaler visited PD_ADMAS on 28.03.12 - 29.03.12 and interacted with the scientists of PD_ADMAS on various topics including mastitis, foot rot in sheep, bluetongue, IBR, etc. The meeting was followed by discussion on the various diseases in both countries in particular mastitis and bluetongue. The scientists also discussed the possibility of formulating joint collaborative research proposal linking the epidemiological expertise from their group in UK and the microbiological expertise from PD_ADMAS in India.



Dr. Laura Green and Dr. Jasmeet Kalera of Nottingham University, U.K with Scientists and Staff during their visit on 28.03.12 at PD_ADMAS, Bangalore.

International women's day celebration

International women's day was organized at the directorate on 08.03.2012. Dr. H. Rahman, Director and Chairman (Women Empowerment Committee) of the institute addressed all the women employees of the Institute and emphasized tremendous contribution of the women to the society as a whole and Animal Husbandry sector in particular. Dr. Rajeswari Shome (In-charge Women Complaint committee) presented the importance of the two committees in the Institute for the benefit of the women employees.



Celebration of "International Women's Day" on 08.03.12 at PD_ADMAS, Bangalore.



Meeting held with Dr. A Mohan, Expert on NADRS (DADE, New Delhi) at PD_ADMAS, Bangalore



CSF investigation at Kirugavalu, Mandya, Karnataka

5th Research Advisory Committee meeting of the Institute



5th Research Advisory Committee meeting of PD_ADMAS was held on 29.06.12.

11th Institute Management Committee Meeting of the Institute



11th Institute Management Committee meeting of PD_ADMAS was held on 30.06.12.

Hindi Implementation Committee Meeting



Meeting of 'Hindi Implementation Committee' on 20.06.2012 at PD_ADMAS, Bangalore.

Diagnosis of equine Brucellosis

Equine brucellosis is caused by *B. abortus* which manifests as fistulous withers, poll evil, nonspecific lameness due to joint infection or, rarely, late abortions. Antibody detection by serological tests such as Rose Bengal Plate Test (RBPT) and standard tube agglutination test (STAT) have been used for diagnosis of clinical and suspected cases. ELISA is not recommended in diagnosis of equine brucellosis. Recombinant protein-G conjugate (universal conjugate) based ELISA which reacts with immunoglobulins of a large number of livestock species including horse immunoglobulins has been exploited for brucellosis screening in equines.

PD_ADMAS, received 135 (mares - 113; stallion- 22) sera samples from different stud farms in the country during 2010-2012 for brucellosis diagnosis and 10 (7.4%), 13 (9.6%) and 4 (3%) sera samples were positive by RBPT, protein-G ELISA and genus specific PCR, respectively. Among mares, 9 out of 113 and in stallion, 4 out of 22 were brucellosis positive. Detection of both anti- *Brucella* antibodies and *Brucella* antigen were of value for the confirmation of the disease in the stud farms.

It is important to make brucellosis screening mandatory in stud farms especially breeding male horses annually to prevent the spread of the infection among the stud farms and to stud farm workers.

FAO, India team visited PD_ADMAS

A team comprising of Dr. John Weaver, Chief Technical Advisor, Dr. A.B. Negi, National Project Coordinator and Dr. Madhur Dhingra, National Consultant (Epidemiology) FAO India visited PD_ADMAS on 16.03.12. The team interacted with Director and Scientists about the feasibility of providing training to the field veterinarians in epidemiology. The team expressed satisfaction over the facilities and expertise of the institute for providing epidemiology training to field veterinarians.



Meeting with Dr. M Dhingra, Dr. A B Negi and Dr. J Weaver of FAO regarding field epidemiology training on 16.03.12 at PD_ADMAS, Bangalore.

Economic and Social Consequences of Animal Diseases

Animal diseases are a threat not only to the animal products marketing sector but also to the broader economy. The consequences of animal diseases in domesticated birds and livestock can be complex and generally go well beyond the immediate effects on affected producers. These diseases have numerous impacts, including:

- Productivity losses for the livestock (e.g. production losses, cost of treatment, market disturbances)
- Loss of income from activities using animal resources (in such sectors as agriculture, transportation and tourism)
- Loss of well-being of human beings (morbidity and even mortality rates, food safety and quality)
- Prevention or control costs (production costs, public expenditure)
- Suboptimal use of production potential (animal species, genetics, livestock practices)

These economic and social effects can be classified as 'direct', 'ripple' (impact on the industry's upstream and downstream activities), 'spillover' (impact on other sectors) and 'long term' or 'remote'.

Direct effects

The most direct economic impact of animal diseases is loss of production and/or productivity, and ensuring income losses for farmers. If the farm economy is diversified or if there are other opportunities to generate income, the impacts can be mitigated.

Ripple effects

An epizootic can affect the industry's upstream (inputs, genetic resources) and downstream activities (slaughter houses, processing and marketing) in terms of jobs, income for the stakeholders in the industry, or market access.

Spillover effects

It is well known that agriculture plays an important role in the generation of income and jobs in other sectors but the closeness of this interdependence became particularly obvious during recent epizootics of Avian Influenza in our country. The losses are difficult to calculate and would undoubtedly be much more significant in light of the extremely high mortality rates in developing countries.

Long term effects

It is difficult to calculate the cost of the public's loss of confidence in animal industries in their countries. The loss of confidence by an importer can trigger a lasting embargo and major economic and social repercussions in the exporting country.

Newly Sanctioned Projects

1. "Development of recombinant antigen based diagnostics for surveillance of *peste des petits ruminants*" (BT/PR3482/ADV/90/121/2011), Project Leader: Dr. H. Rahman, Project Director, Principal Investigator: Dr. V. Balamurugan, Sr Scientist
2. "Study to determine the incidence of BVD in India and its importance in dairy industry" (5(10)/2012-ASR-IV/2012) under Public Private Partnership (PPP) mode with M/S Intervet India Pvt Ltd., Pune, Maharashtra. Project Leader: Dr. H. Rahman, Project Director, Principal Investigator: Dr. S.S. Patil, Scientist
3. "Development of newer economical sensitive diagnostics for the detection of carrier status Surra for surveillance (BT/PR3478/ADV/90/122/2011), Project Leader: Dr. H. Rahman, Project Director, Principal Investigator: Dr. P.P. Sengupta, Sr Scientist
4. National Control Programme on Brucellosis (NCPB) under the Livestock Health and Disease Control (LH&DC) (No 53-72/2010-LDT (LH)/2012), Program Leader: Dr. H Rahman, Program Co-ordinator: Dr. (Mrs). Rajeswari Shome, Sr Scientist.
5. 'Risk Analysis of Introduction of Notifiable Avian Influenza (NAI) (HPNAI and LPNAI) in India with special reference to Risk of NAI through Trade and/or Non-trade Activities', (ICAR file no. 3(5)/2012-ASR-IV Dated : 06-06-2012, PI: Dr. D.D. Kulakarni, Principal Scientist, HSADL, Project Leader: Dr. H. Rahman, Project Director, CC-PI: Dr. B. Ganesh Kumar, Sr. Scientist.

Joinings/Transfers/Superannuations

Dr. B. Ganesh Kumar, Senior Scientist joined on 06-02-2012 upon transfer from NCAP, New Delhi

Dr. K.P. Suresh, Scientist joined on 01-05-2012 consequent upon transfer from NIANP, Bangalore

Shri P.N.M. Nair, AO, PD_ADMAS, Bangalore superannuated on 31-05-2012

Dr. GB Manjunatha Reddy, Scientist joined on 26-06-2012 consequent upon transfer from CIRG, Makhdoom

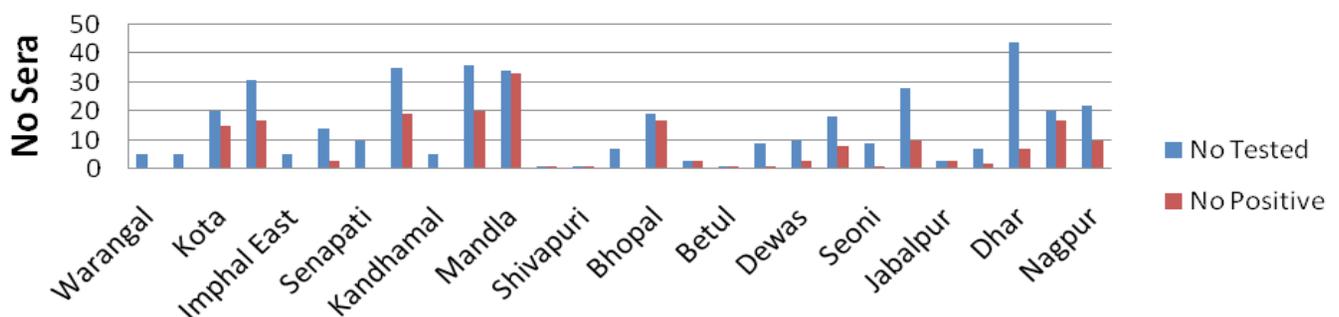
Seminars / Workshops Organised From Jan To June 2012

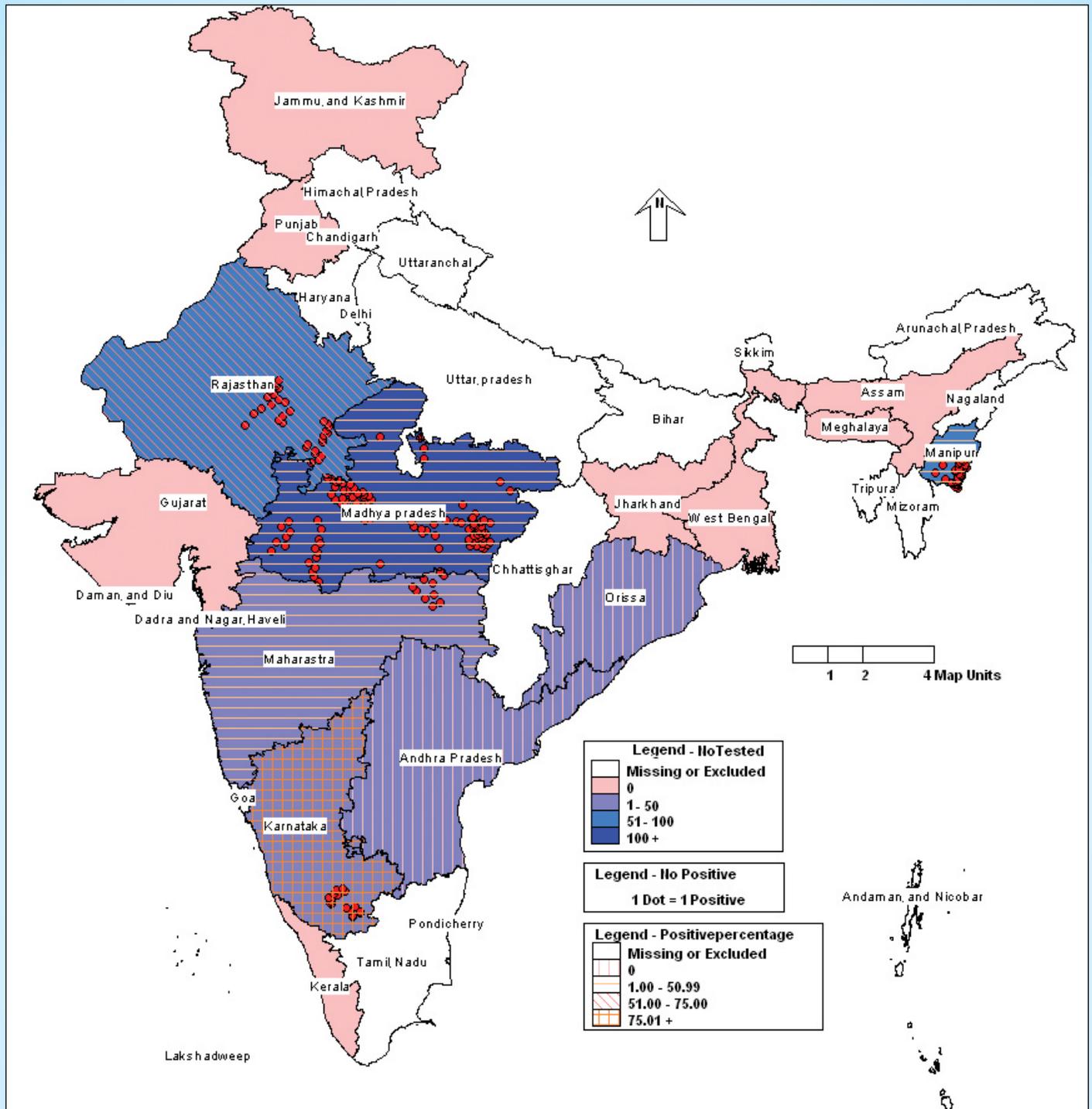
- ◆ Organized Interactive meeting with NIC, NADRS at PD_ADMAS, Bangalore on 3rd January 2012.
- ◆ Organized Interactive meeting with AWAKE, NGO to discuss the implementation of TSP in Tribal area on 4th January 2012.
- ◆ Organized Training cum workshop on “Animal Disease Informatics” to all the AICRP_ADMAS Collaborating units at PD_ADMAS from 28th Feb to 5th March 2012.
- ◆ Organized training on "Enterpreneurship development in Animal Husbandary" under Tribal sub plan to Tribal farmers of Muthathi and Soligaradoddi village from 5-8th, 12-14th and 15th-17th March 2012.
- ◆ Organized DBT workshop on Development of Brucellosis Translational Research Program meeting at PD_ADMAS from 20th to 21st March 2012.
- ◆ Organized sensitizing meeting on Brucella Control under National Control Programme on Brucellosis on 30th March 2012.
- ◆ Organized Research Advisory Committee meeting at PD_ADMAS on 29th June 2012.
- ◆ Organized XI Institute Management Committee meeting at PD_ADMAS on 30th June 2012.

Seminars / Workshops Attended From Jan To June 2012

- Interactive meeting with DG, ICAR, DDG (AS), Chairman QRT, PD_ADMAS for submission of final QRT Report at New Delhi on 5th January 2012
- Attended the Brain storming session on Strategies for propagation and augmenting productivity of Mithun in NEH Region at Nagaland on 12th to 13th January 2012.
- Attended the workshop on “Epidemiology of Animal Diseases” organized by AH & Vety Dept., Govt. of Assam, Guwahati on 19th to 21st January 2012.
- Attended Valedictory programme on Disease Informatics at CIFE, Mumbai on 30th January 2012.
- Attended Board of Management meeting of KVASU at Thiruvananthapuram, on 31st January 2012 & 6th March 2012.
- Attended IMC meeting at NRC on Mithun, Jharnapani, Nagaland on 3rd Feb 2012.
- Attended FMD International Conference on 14th and 15th February 2012 at New Delhi.
- Attended Director’s/Vice-Chancellors Conference at New Delhi on 16th to 18th February 2012.
- Attended EFC Meeting at New Delhi on 6th -7th March 2012.
- Attended Board of Management meeting of KVASU on 19th March 2012.
- Attended Management Council Meeting of KVASU at Thiruvananthapuram on 23rd March 2012.
- Attended TADinfo meeting DADF at New Delhi on 26th March 2012.
- Attended Expert group meeting on Leptospirosis held at ICMR, Head Quartres, New Delhi on 10th April 2012.
- Attended EFC meeting at ICAR, New Delhi on 27th April 2012 chaired by hon’ble DG, ICAR.
- Attended the XXIII meeting of Regional Committee No. VIII held at TNU, Coimbatore on 15th and 16th June 2012.
- ICAR-NAE short training on “Molecular techniques in diagnosis and prophylaxis of diseases of farm animals and poultry” conducted by Division of Pathology, Indian Veterinary Research Institute, Izatnagar from 12th to 17th March 2012.
- Attended the “Strengthening of Statistical computing for NARS” workshop for nodal officers held on 20th June 2012 at GKVK, UAS, Bangalore.

District-wise seroprevalence of CSF during 2011-12





State wise seroprevalence of CSF during 2011-12 (White-Data not available, Pink-CUs not supplied the samples, Samples tested range: Light blue 1-50, medium blue-51-100, Dark blue: >100), 1 Dot= 1 Positive, Percent positivity-Horizontal Grids=0-25%, Vertical Grid=25-50% and Mesh Grid=.50%

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