

All India Co-ordinated Research Project on  
Animal Disease Monitoring & Surveillance  
(AICRP on ADMAS)

# ANNUAL REPORT 2015 - 16



**ICAR-NATIONAL INSTITUTE OF VETERINARY  
EPIDEMIOLOGY & DISEASE INFORMATICS**

**YELAHANKA, BENGALURU - 64**





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**on**  
**Animal Disease Monitoring and Surveillance**  
**(AICRP on ADMAS)**

**Annual Report**  
**2015-16**



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### **Compiled and Edited by**

Dr. Divakar Hemadri  
Dr. S. S. Patil  
Dr. K. P. Suresh  
Dr. Awadhesh Prajapati

### **Technical Assistance**

Latha Gopal Singh  
Rashmi Kurli  
Shakshi Gautam  
Reshma K.  
Sandeep Santra  
Swaroop Dey

Published by

**Dr. B.R.Shome**

Director (Acting), ICAR-NIVEDI

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Printed at :

**CNU Graphic Printers,**

Malleswaram, Bengaluru - 03

Mobile : +91-9880 888 399

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## Acknowledgements

The Director, ICAR-NIVEDI & Project Coordinator, AICRP on ADMAS, place on record his sincere thanks to Dr. Trilochan Mohapatra, Secretary, DARE & Director General, ICAR and Dr. S. Ayyappan, Former DG, ICAR for their wholehearted interest in this project and guidance. Thanks are also due to Dr. H. Rahman Deputy Director General (Animal Sciences), ICAR, for his keen interest and monitoring the progress of the project, for his generous and timely financial support.

We are thankful to Dr. Ashok Kumar, ADG (Animal Health) ICAR, who took additional interest in the project in formulating the technical programme and guidance for its implementation. His continued guidance brought out epidemiological understanding of the major livestock diseases in the country.

We sincerely acknowledge the guidance and timely help rendered by Dr. (Mrs.) Jyothi Misri, Principal Scientist, ICAR.

We are grateful to the Directors of Animal Husbandry and Veterinary Services, Vice Chancellors and Directors of Research of various participating States for permitting to undertake the research programme under their respective jurisdiction.

It is the determined, persistent and untiring endeavor of the Principal investigators and Co-Principal Investigators and their dedicated team members who collected the data for the epidemiological understanding of the livestock diseases in the country which in turn help to formulate the disease control strategies.

Thanks are also due to Dr. D. Hemadri, Principal Scientist & Nodal officer and Dr. S. S. Patil, Sr. Scientist and Co-Nodal Officer, AICRP on ADMAS for their trustworthy and dependable support to carry out the project. The help and support rendered by NIVEDI Scientists, Technical Officers, Administrative and Account sections of ICAR- NIVEDI is also acknowledged.

**Dr. B. R. Shome**  
DIRECTOR (Acting)



## PREFACE

All India Coordinated Research Project on Animal Disease Monitoring and Surveillance (AICRP on ADMAS), under ICAR-NIVEDI is a unique programme on Veterinary Epidemiology and Disease Informatics which is conducting disease surveillance, monitoring and analysis of livestock diseases in India through 32 centers of AICRP on ADMAS located in different states of the country.

Currently, all AICRP centers are extensively working on animal disease diagnosis, outbreak investigation, disease reporting, pathogen characterization and mapping etc., with major focus on Bacterial (Brucellosis, Leptospirosis, Mastitis, Haemorrhagic Septicaemia, Anthrax, Black Quarter, Enterotoxaemia), Viral (Infectious Bovine Rhinotracheitis, Bluetongue, Classical Swine Fever, Peste des Petits Ruminants and Sheep and Goat Pox) and parasitic (Trypanosomiasis, Theileriosis, Babesiosis, Fascioliosis and Amphisomiasis) diseases of economic importance.

The disease outbreak data collected from the States coupled with other data on risk factors are being used for forewarning the occurrence of 13 important Livestock Diseases in the country that too two months in advance. Thus produced forewarning information is disseminated in the form of “Livestock Disease Forewarning monthly bulletins” to various Central and State Animal Husbandry Departments to initiate suitable preventive measures.

National Livestock Serum Repository is one of its kind facility has more than 45,000 serum repository collected from different states of the country and has depicted the National Seroprevalence of economically important livestock diseases.

Linkages have also been established with KVKs, NRC on Mithun, NRC on Yak, NRC on Camel for understanding the disease trends in such species.

The need based training programmes on livestock disease epidemiology, disease informatics and biostatistics were conducted for the benefit of investigators of AICRP on ADMAS centers and other veterinarians of the country. The performances of the centers are very good and need to be improved to make them best. The cooperation extended from them is highly appreciated.

Wholeheartedly I congratulate all Centers and solicit continued support for the programme.

**Dr. B. R. Shome**  
DIRECTOR (ACTING)





# Central Laboratory Report National Livestock Disease Scenario



## National Livestock Serum Repository

As part of the sero-surveillance activity under AICRP on ADMAS, NIVEDI designs and sends sampling plan every year to each of the centers of AICRP on ADMAS. The serum samples so collected, as per the plan, are sent to NIVEDI for screening against various livestock diseases mainly, Brucellosis (Bovine, Caprine, and Swine), Infectious Bovine Rhinotracheitis (IBR), Classical Swine Fever, Bluetongue, Leptospirosis etc. The serum bank at ICAR-NIVEDI, arranges for screening against the said diseases and catalogues the serum along with the results.

During the year 2015-16, a total of 10753 serum samples were received from 23 centers of AICRP on ADMAS. The detailed state wise and species wise distribution of the serum samples is given below (Fig. 1a & 1b)

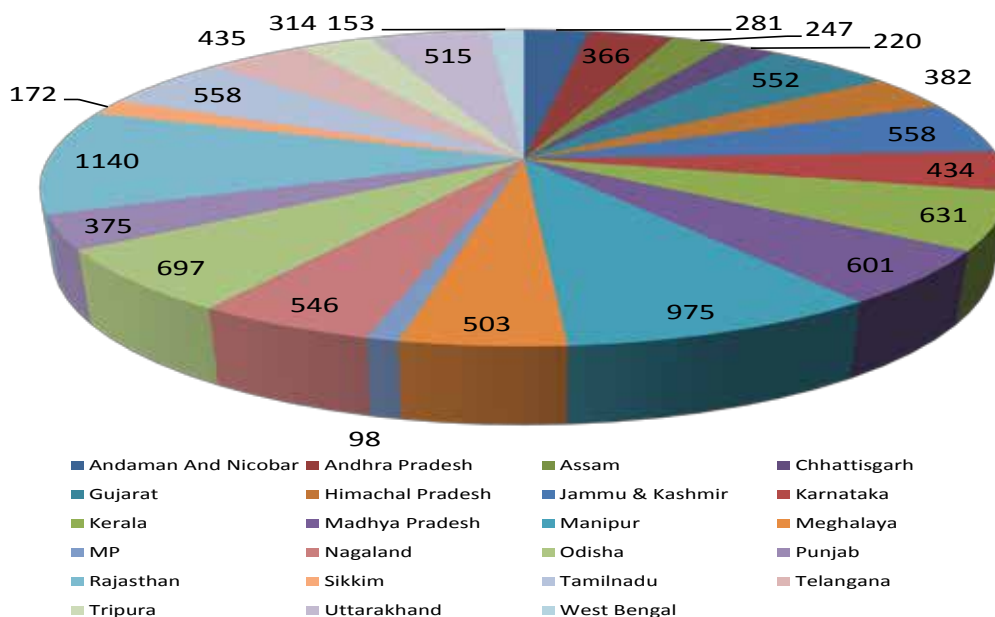


Fig. 1a. State wise distribution of serum samples received during 2015-16 (n=10753).

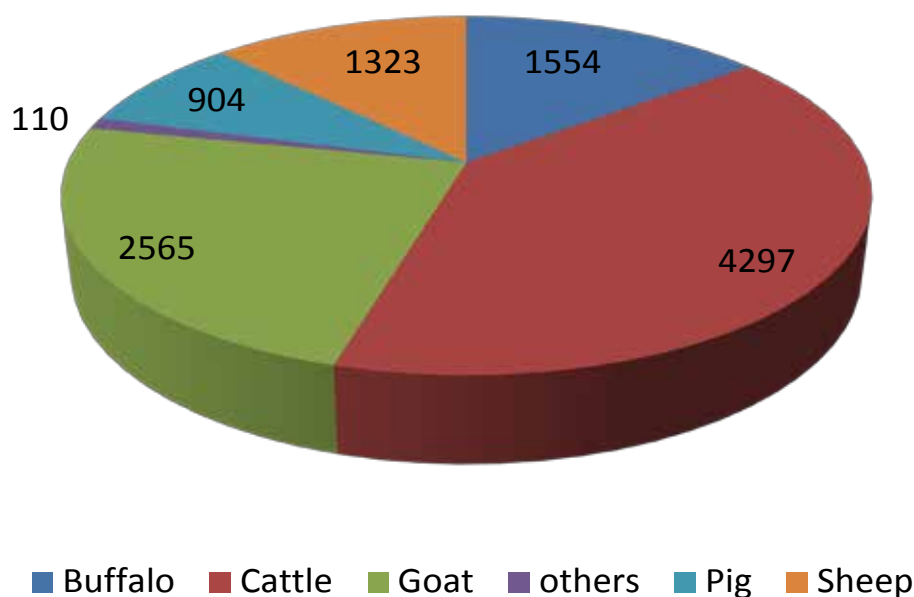


Fig. 1b. Species wise distribution of samples received during 2015-16.

**Table 1.** Center wise receipt of samples and compliance

AICRP Center	No of samples requested	No of Samples Received	Compliance
Agartala	540	373	69.07
Ahmedabad	547	546	99.82
Barapani	548	503	91.79
Bengaluru	549	434	79.05
Bhopal	550	550	100
Chennai	548	358	65.33
Cuttack	548	543	99.09
Dehradun	535	514	96.07
Gangtok	539	134	24.86
Guwahati	541	152	28.1
Hyderabad	540	434	80.37
Imphal	551	546	99.09
Kohima	539	539	100
Kolkata	549	153	27.87
Ludhiana	552	375	67.93
Palode	554	554	100
Puducherry	531	512	96.42
Pune	549	449	81.79
Raipur	529	440	83.18
Shimla	531	341	64.22
Srinagar	550	550	100
Vijayawada	541	316	57.41

## Prevalence studies

### Brucellosis

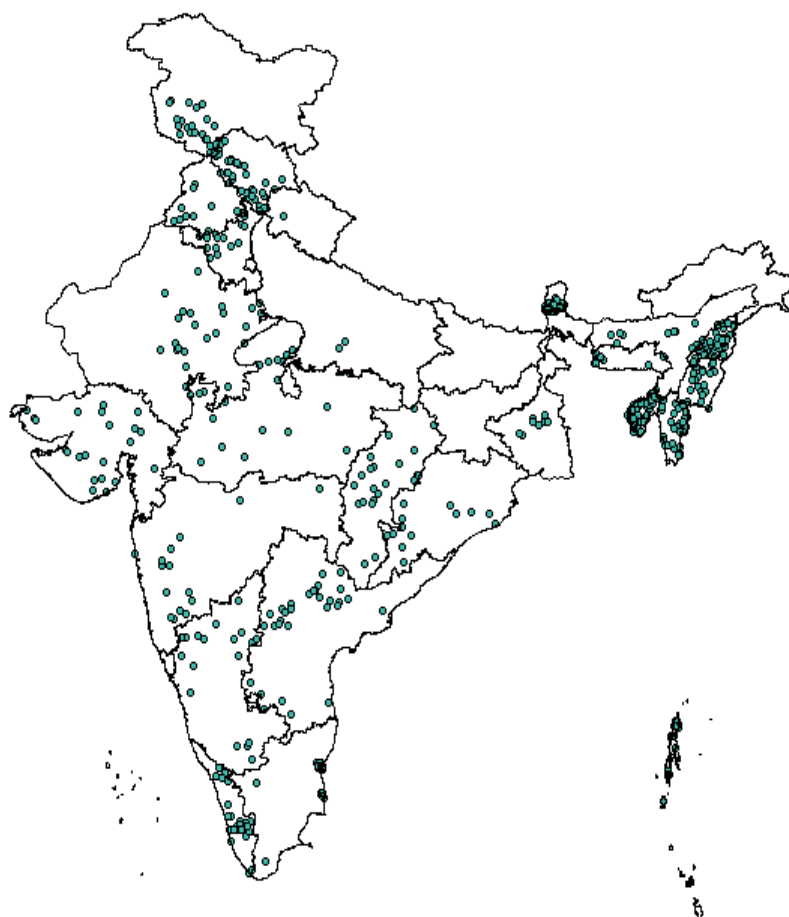
Brucellosis, a zoonotic disease caused by bacterial species of the genus *Brucella*, is prevalent in most part of the world. In India, the disease is considered to be endemic and a centrally sponsored control program (calfhood vaccination using *Brucella abortus* strain 19) is in place for the control of this disease. During the period under report a total of 7373 (3907 of cattle and 3466 of small ruminants) serum samples collected during 2015-16 by centers of All India Co-ordinated Research Project on Animal Disease Monitoring and Surveillance (AICRP-ADMAS) as per

the stratified sampling plan derived from livestock-population-referenced sampling frame of 6,40,000 villages as provided by ICAR-NIVEDI were screened for the presence of anti-brucella antibodies using protein-G based indirect ELISA for large ruminants and sheep and goat Indirect ELISA for small ruminants. The said serum samples were drawn from 19 and 18 states respectively for bovines and small ruminants. Overall prevalence of bovine brucellosis in the country was found to be 2.3% (95% CI 1.9-2.8) with higher prevalence in the states of Nagaland (25%, 95% CI 19.1-31.7), Punjab (7.4%, 95% CI 5.0-10.8), Rajasthan (6%, 95% CI 3.7-9.7), Telangana (4.4%, 95% CI 2.0-9.3). Similarly, overall prevalence of brucellosis in small ruminants (sheep and goats) in the country was found to be 5.1% (95% CI 4.4-5.9) with higher prevalence in the states of Telangana (16.8%, 95% CI 13.0-21.5), Karnataka (16.2%, 95% CI 12.2-21.2), Jammu and Kashmir (15.5%, 95% CI 12.2-19.5), Gujarat (8.6%, 95% CI 5.6-12.9), Andhra Pradesh (7.2%, 95% CI 4.3-11.7). The study shows that brucellosis is more prevalent in small ruminants compared to large ruminants and stresses the need for vaccination of sheep and goat to control brucellosis in India.

### Infectious Bovine Rhinotracheitis (IBR)

During the period under report 4932 serum samples of cattle and buffaloes from 23 states (Fig. 2) were screened for IBR using indirect Avidin-Biotin ELISA and statewise results of which are given below.

0 400  
kilometers



**Fig 2.** Sampling locations of IBR and Bovine Brucellosis.

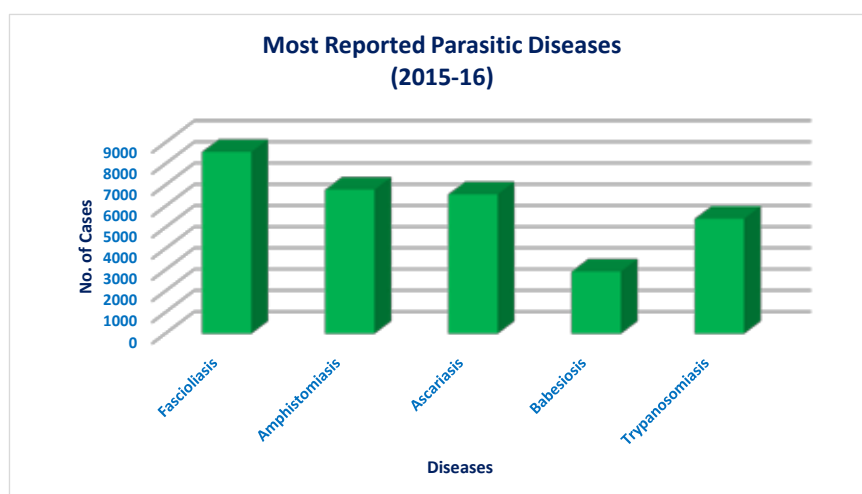
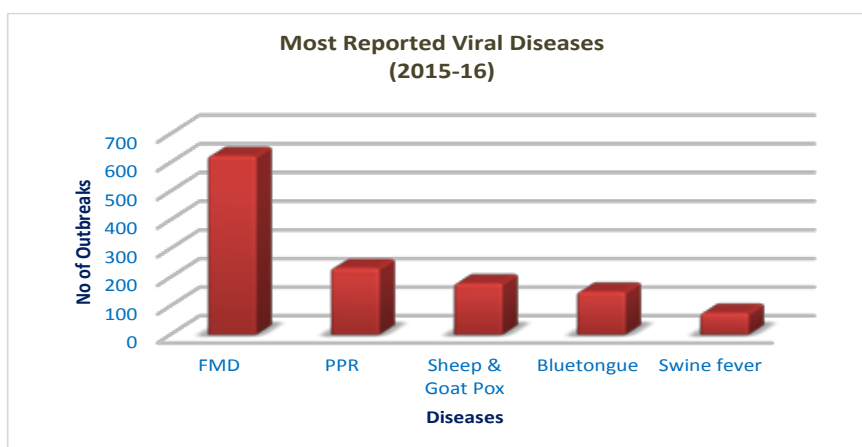
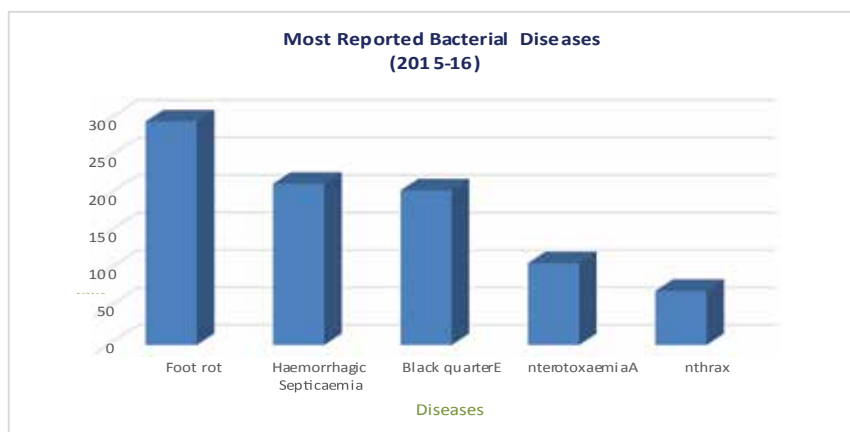
**Table 2.** State-wise breakup of cattle and buffalo serum samples screened against IBR

S. No.	State/Union Territory	No. Positive	No. Negative	Total	Percent Positive
1	Andaman and Nicobar	113	53	166	68.1
2	Assam	86	229	315	27.3
3	Chhattisgarh	24	162	186	12.9
4	Gujarat	91	220	311	29.3
5	Harayana	65	65	130	50
6	Himachal Pradesh	52	201	253	20.6
7	Jammu & Kashmir	25	193	218	11.5
8	Karnataka	37	128	165	22.4
9	Kerala	71	204	275	25.8
10	Madhya Pradesh	47	336	383	12.3
11	Maharashtra	67	174	241	27.8
12	Manipur	116	187	303	38.3
13	Meghalaya	21	79	100	21
14	Mizoram	37	44	81	45.7
15	Nagaland	101	76	177	57.1
16	Odisha	67	165	232	28.9
17	Puducherry	159	120	279	57
18	Punjab	170	122	292	58.2
19	Sikkim	150	141	291	51.5
20	Tamil Nadu	9	14	23	39.1
21	Telangana	28	104	132	21.2
22	Tripura	60	187	247	24.3
23	West Bengal	71	61	132	53.8
	<b>Grand Total</b>	<b>1667</b>	<b>3265</b>	<b>4932</b>	<b>33.8</b>

From the table it can be seen that disease is highly prevalent in Northern states of Punjab and Haryana, which can be due to intensive farming. However, it is surprising to find high prevalence of IBR in North eastern states including West Bengal, which warrants systematic study to determine reason for high prevalence in these parts of the country.

## National Animal Disease Referral Expert System (NADRES)

The NADRES database contains information on major livestock diseases of the country along with their associated risk factors. During the period under report, risk factors like susceptible livestock population and precipitation data were updated at all the 645 districts of the country. Given below details of the most reported bacterial, viral and parasitic diseases.



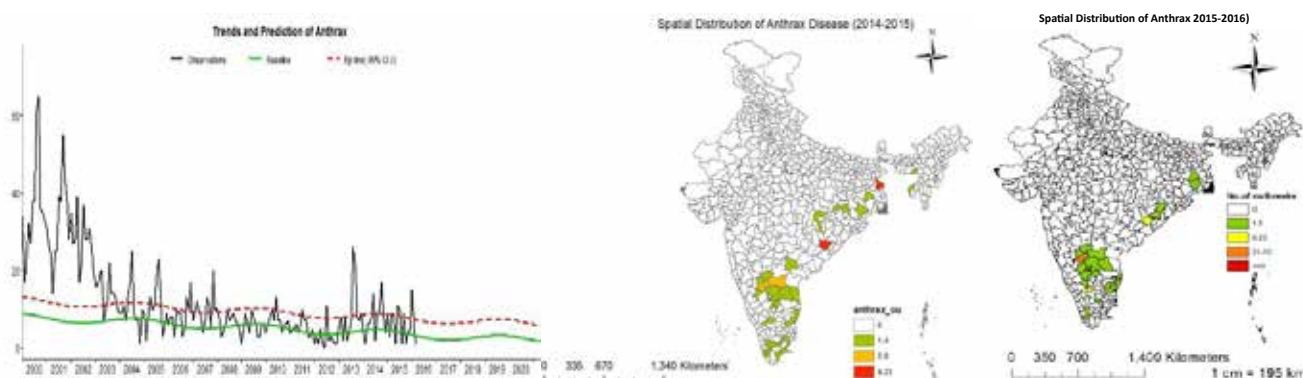
Analysis of the disease data collected over the past 12 months indicates following trends.



## Bacterial Diseases

### Anthrax:

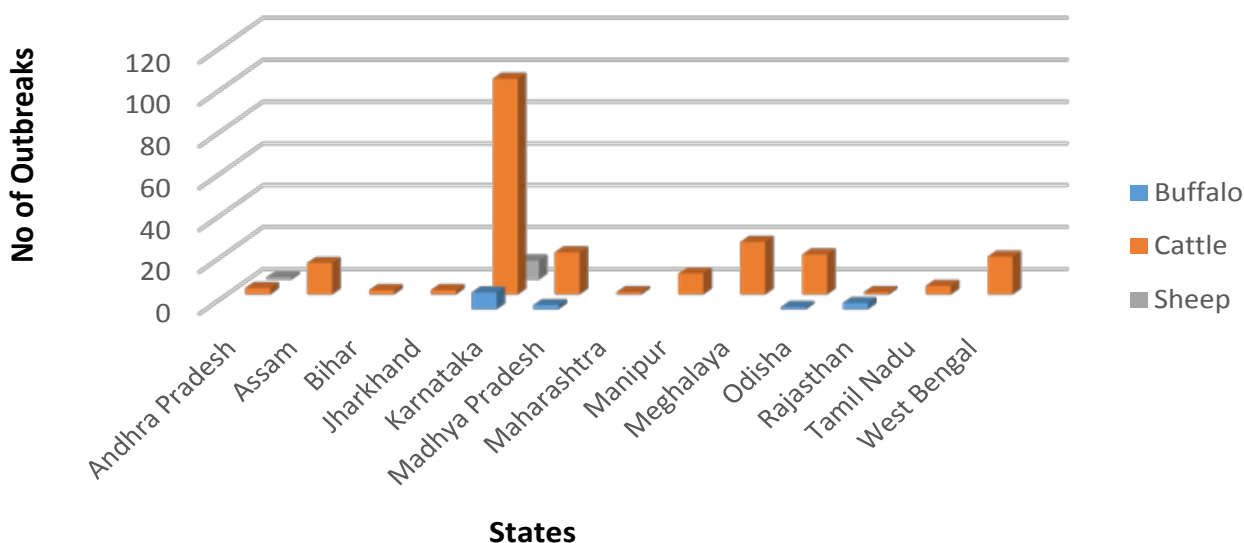
The disease was reported in eight states (AP, Kerala, Karnataka, Tamil Nadu, Odisha, Chhattisgarh, West Bengal, Tripura) with 45 outbreaks in Karnataka, 15 in Odisha and 13 in Andhra Pradesh of the 92 reported. Large number of outbreaks were recorded in the winter months of December, January and February. Nearly 50% (45/92) outbreaks were in Sheep followed by cattle (28) and goat (14). Like in the year 2013-14, the disease outbreaks were mostly concentrated at south to eastern part of India. Trend line shows gradual decline, however, many spikes over the 95% upper CI is a worrying sign.

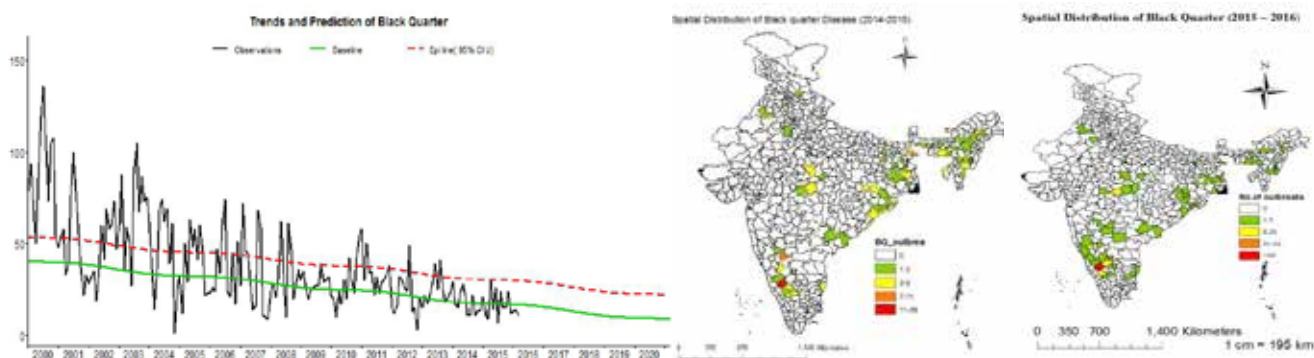


### Black Quarter:

A total of 247 outbreaks of BQ were recorded in the country with large number of outbreaks were recorded in the state of Karnataka (n=120). Cattle, buffalo and sheep were the species affected in that order with 223 outbreaks. The species wise details of outbreaks are given in the Fig below. Like in the year 2013-14, the disease outbreaks were mostly concentrated at south to eastern part of India. Spatial distribution of Black Quarter disease is shown in the map. Trend line shows steady decline, which is good.

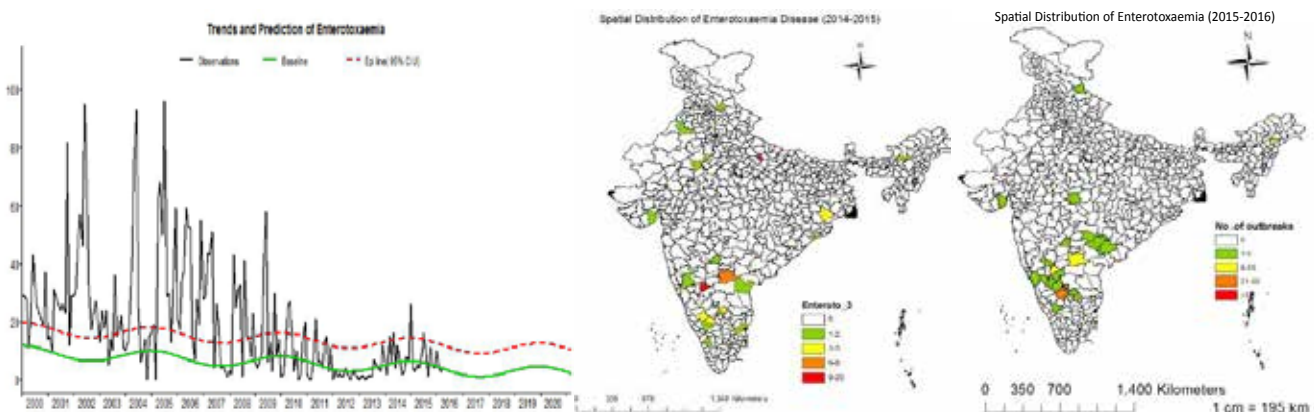
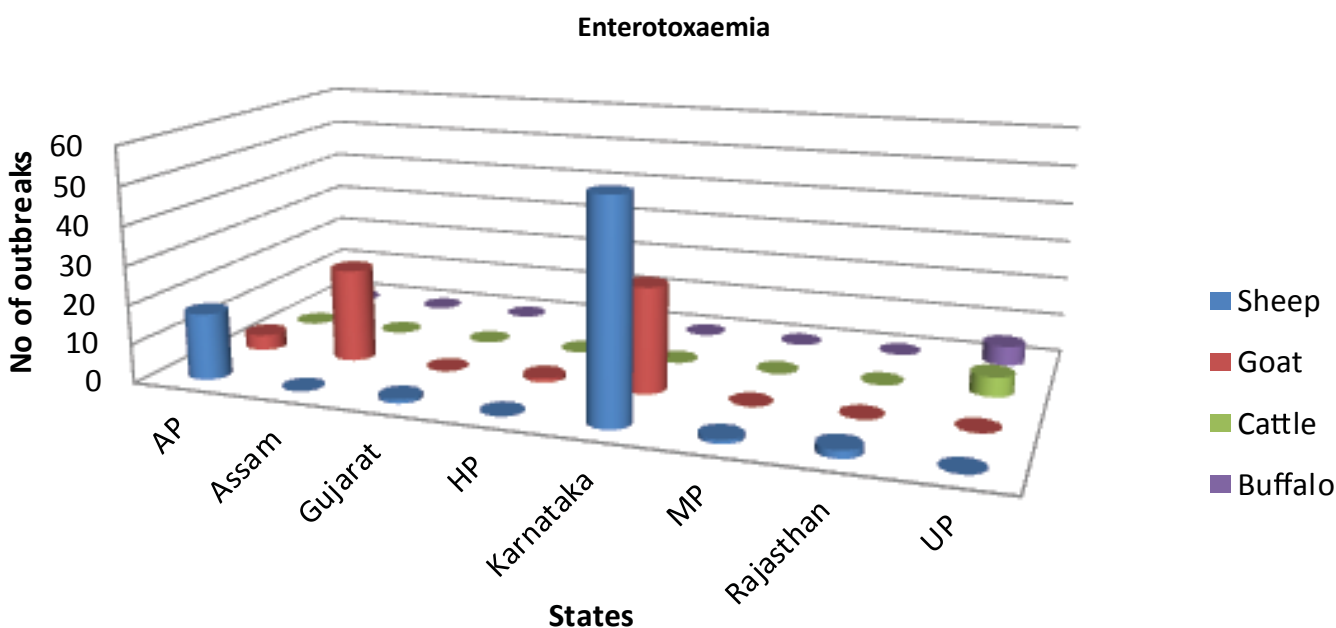
### Black Quarter





### Enterotoxaemia:

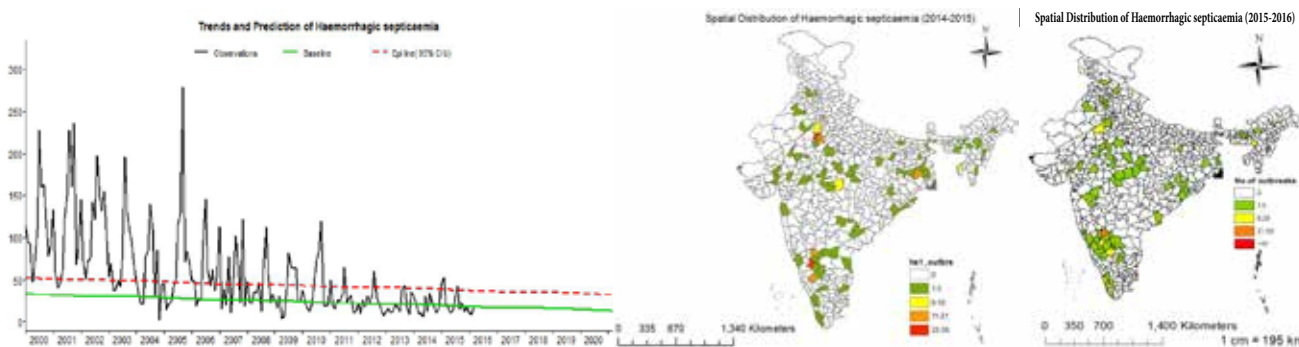
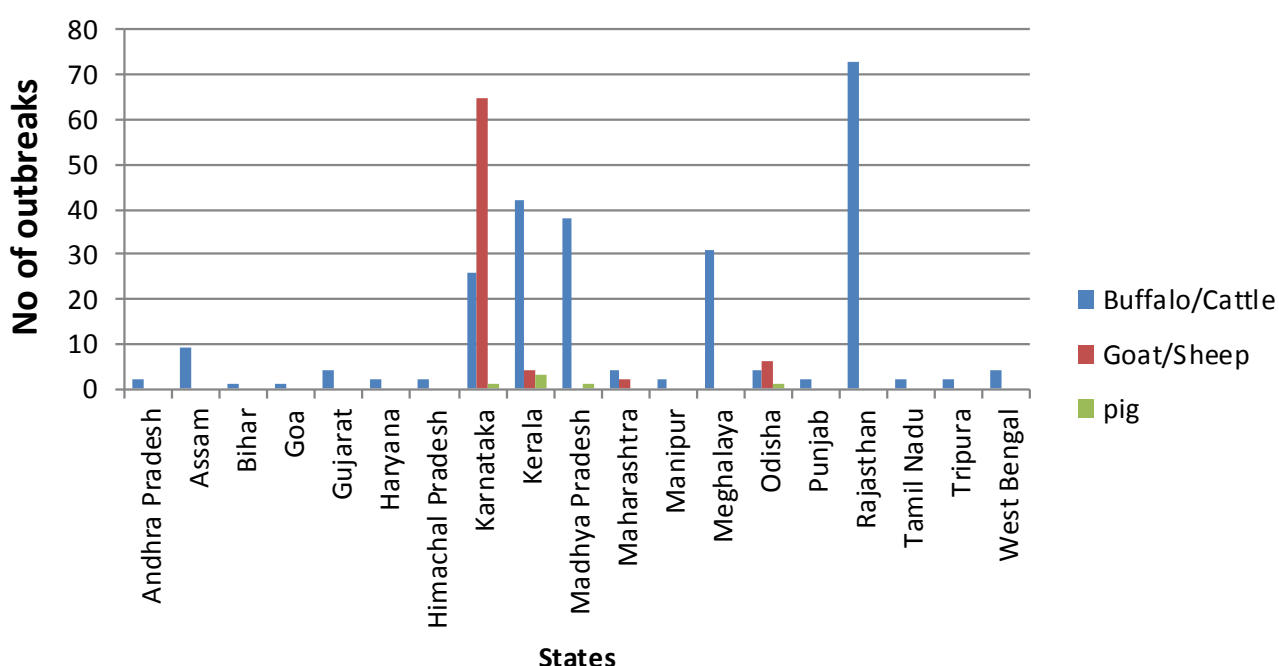
The disease was reported in eight States (Andhra Pradesh, Assam, Gujarat, HP, Karnataka, MP, Rajasthan, UP) with 82 outbreaks in Karnataka, 24 in Assam and 21 in Andhra Pradesh of the 142 reported. Sheep and Goat were the species affected largely. The disease was observed throughout the year. The species wise details of outbreaks are given in the Fig below. Spatial distribution of Enterotoxaemia disease is shown in the map and the number of outbreaks appears more during 2015-16 than in 2014-15.



## Haemorrhagic Septicaemia:

The disease was reported in nineteen states (Andhra Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Odisha, Punjab, Rajasthan, Tamil Nadu, Tripura, West Bengal) with the total outbreak of 334. Karnataka (92) and Rajasthan (73) were the states largely affected by HS. Nearly 50% (170/334) of the outbreaks were in cattle followed by buffalo (81) sheep (43), goat (34) and pig (6). The Disease was observed throughout the year and has occurred in almost all the parts of India. The species wise details of outbreaks are given in the Fig below. Spatial Distribution of Haemorrhagic septicaemia is shown in the map and the number of outbreaks appeared more in northwestern region both during 2014-15 and 2015-16. Trend line shows gradual decline.

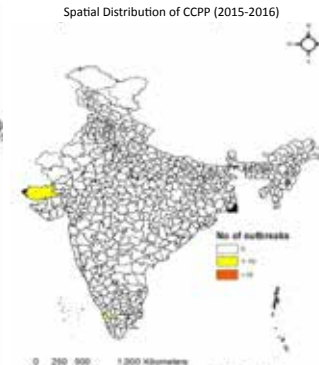
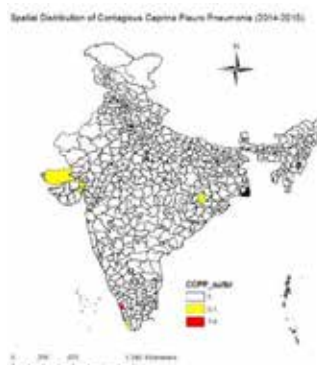
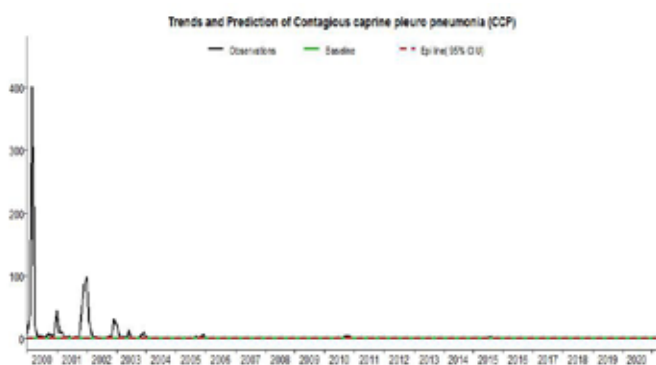
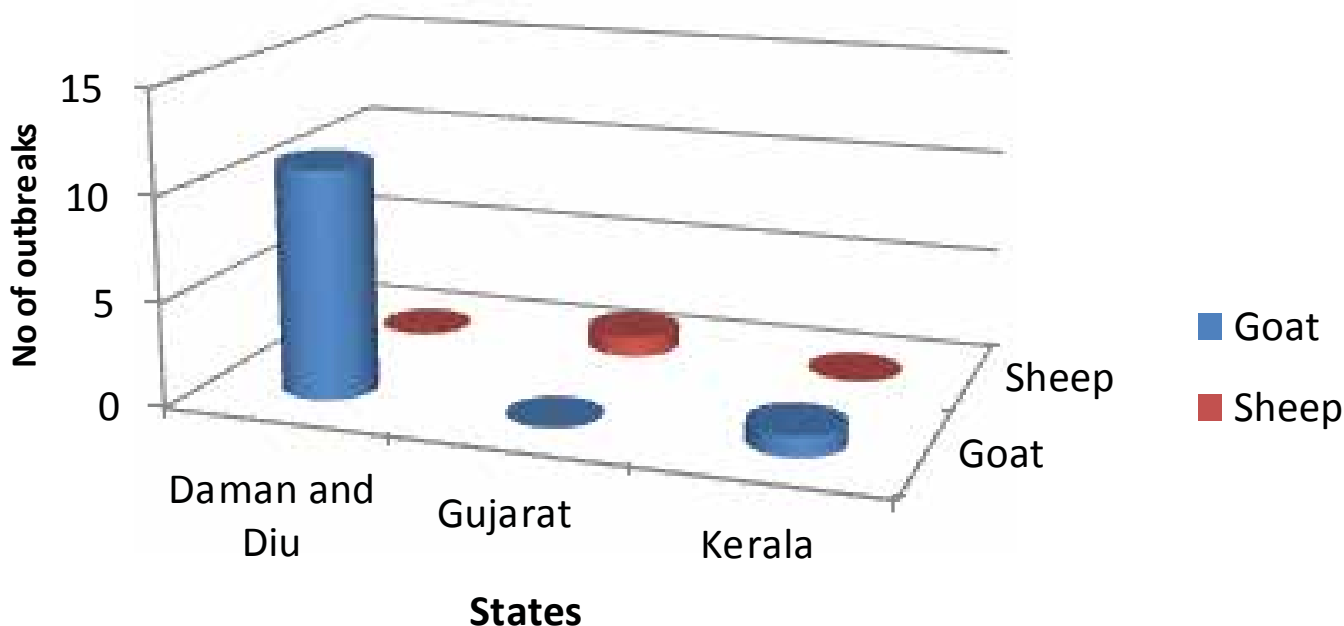
### Haemorrhagic Septicaemia



## Contagious Caprine Pleuro Pneumonia:

A total of 13 outbreaks were reported in Daman & Diu, Gujarat and Kerala. Goat was affected largely. The species wise details of outbreaks are given in the Fig below. Spatial distribution of the disease is shown in the map.

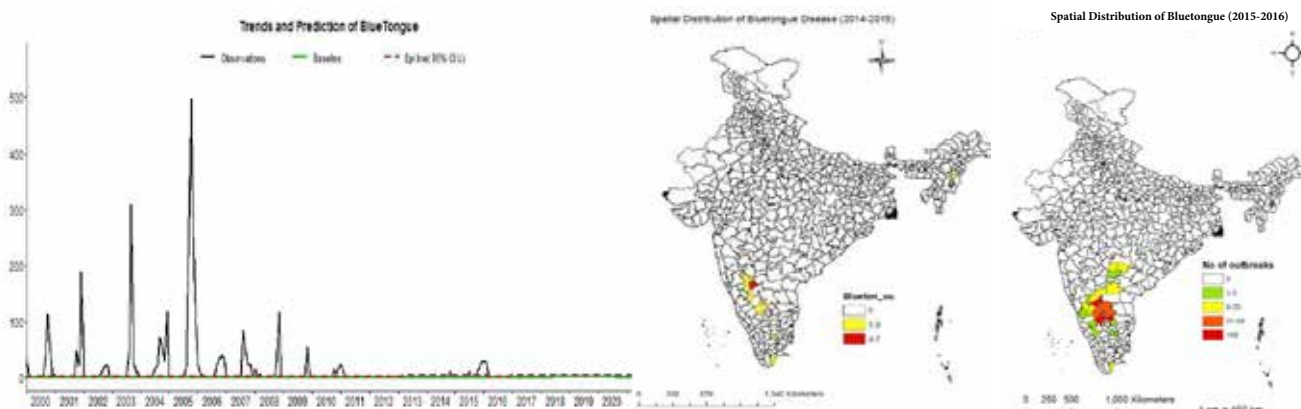
### Contagious Caprine Pleuro Pneumonia



## Viral Diseases

### Bluetongue:

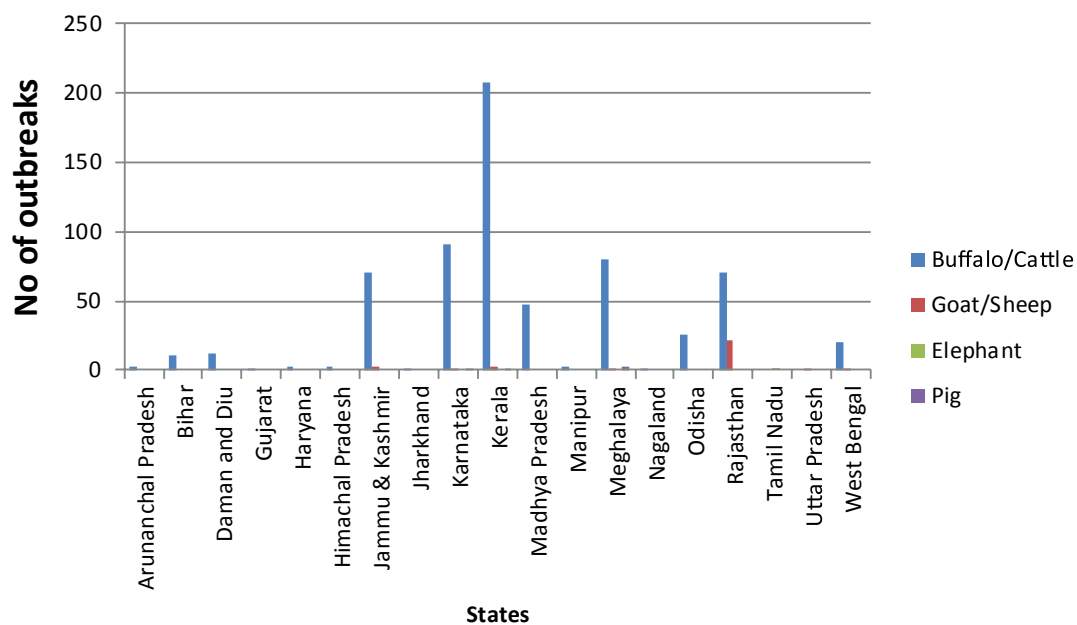
A total of 152 outbreaks were reported in 3 States (Andhra Pradesh, Karnataka and Tamil Nadu). The largest number of outbreaks was recorded in the state of Karnataka (n=119) followed by Andhra Pradesh with 27 outbreaks. Sheep and Goat were the major species affected by BT. Disease outbreak was not observed during the month of April, May and June. Spatial distribution of Bluetongue disease is shown in the map. Like in the year 2014-15, the disease outbreaks were mostly concentrated at southern part of India.

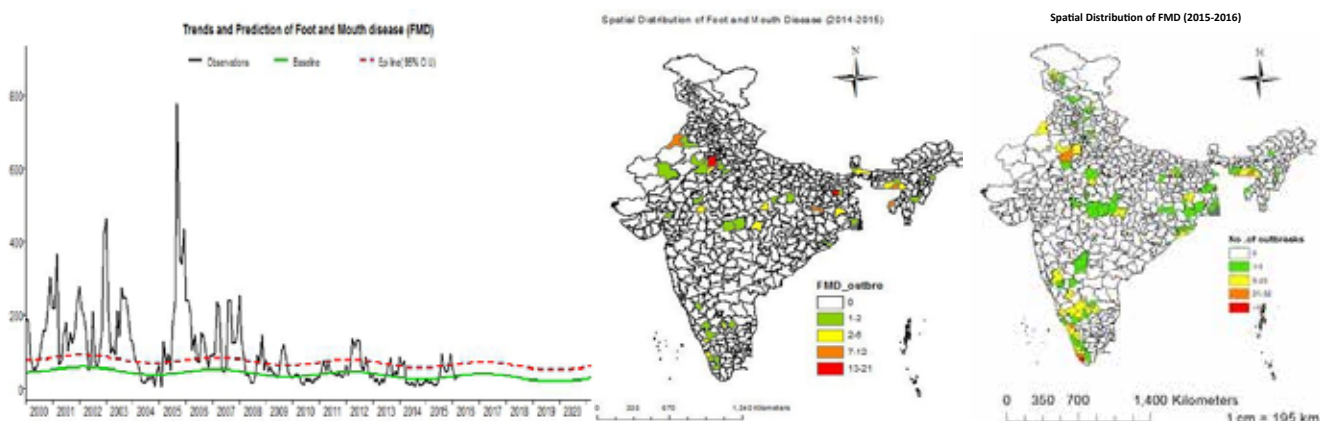


### Foot and Mouth Disease:

A total of 682 outbreaks in nineteen states were reported (Arunachal Pradesh, Bihar, Daman and Diu, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Manipur, Meghalaya, Nagaland, Odisha, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal). Kerala had the largest outbreak of FMD in 2015-16 with 210 outbreaks. Nearly 82% (555/682) outbreaks were in cattle followed by buffalo (91), goat (21) sheep (9), pig (5) and elephant (1). The Disease was observed throughout the year and has occurred in almost all the parts of India. The species wise details of outbreaks are given in the Fig below. Spatial distribution of foot and mouth disease is shown in the map. Trend line shows slow decline despite ongoing vaccination programme.

### Foot and Mouth Disease

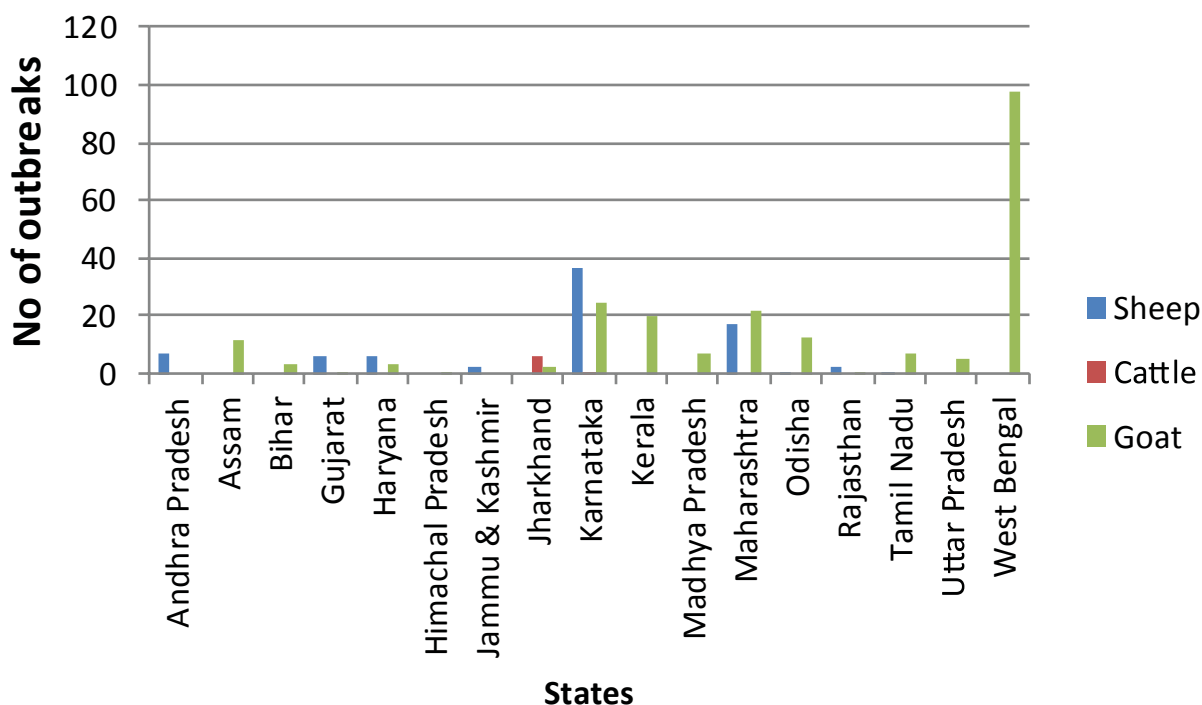




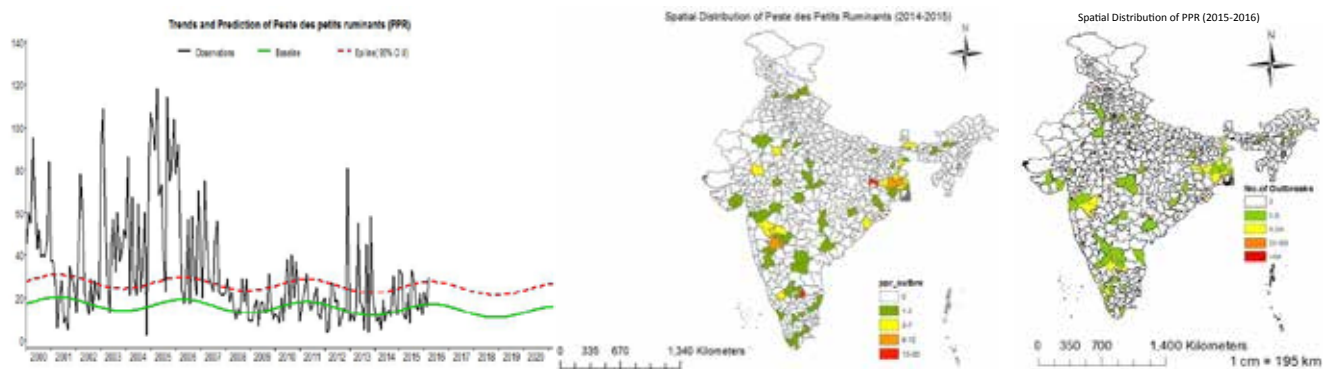
### Peste des Petits Ruminants:

A total of 306 outbreaks were recorded in the 17 states of the country (Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal). Nearly 72% of outbreak was observed in goat followed by sheep. The species wise details of outbreaks are given in the Fig below. Spatial distribution of PPR is shown in the map and the number of outbreaks appeared more in southwestern region during 2014-15. Trend line shows steady state, however, many spikes over the 95% upper CI is a worrying sign which is a concern.

### Peste des Petits Ruminants



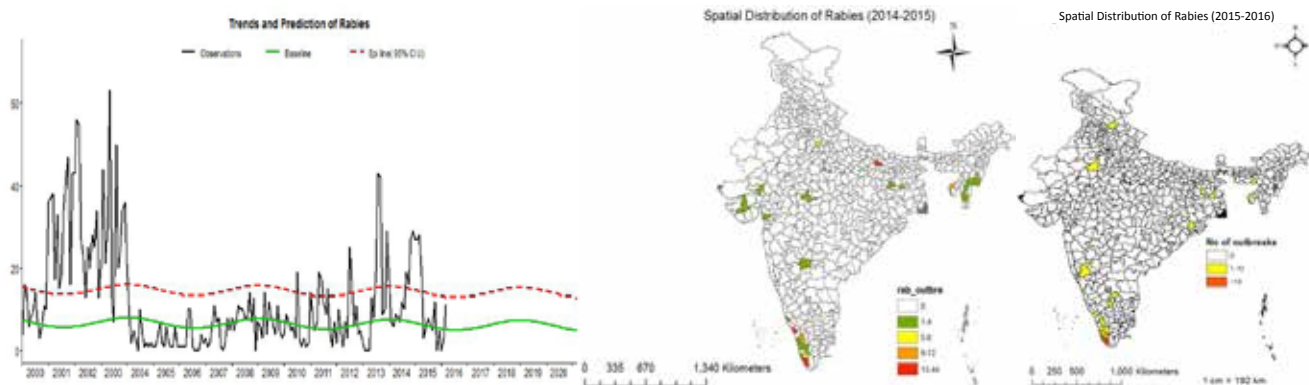
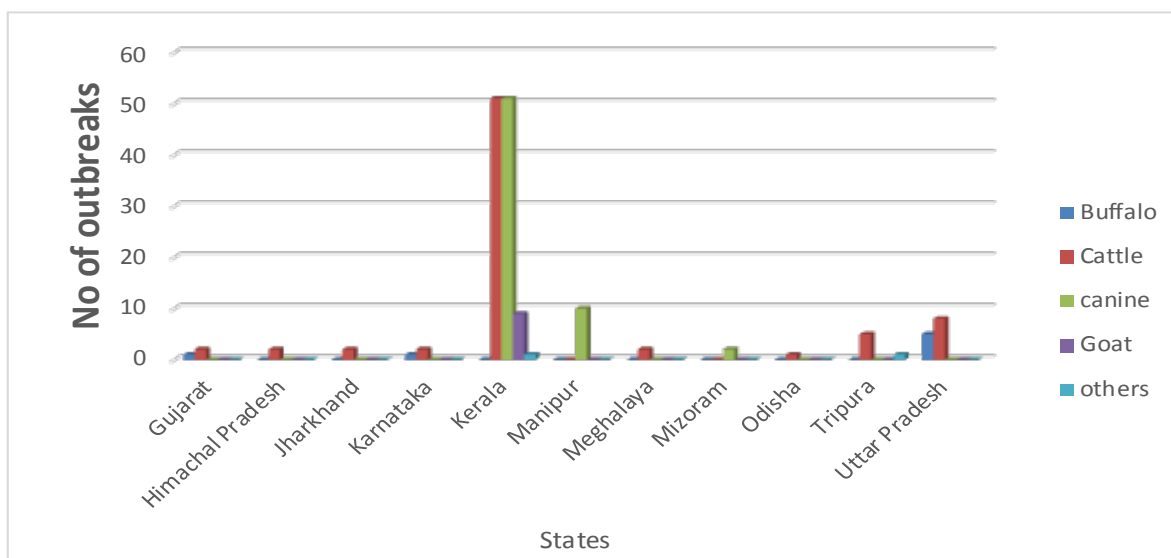




## Rabies:

The disease was reported in eleven states (Gujarat, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Manipur, Meghalaya, Mizoram, Odisha, Tripura, Uttar Pradesh) with the total outbreak of 156. Kerala (n=112) had the largest number of disease outbreaks. Cattle and canine were the species affected largely. The disease was observed throughout the year. The species wise details of outbreaks are given in the Fig below. Spatial distribution of Rabies disease is shown in the map and there was no outbreak observed in West Bengal during 2015-16. Trend line shows steady state, however, many spikes over the 95% upper CI is a concern.

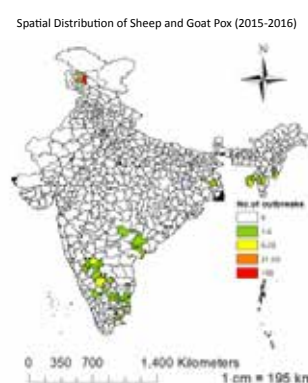
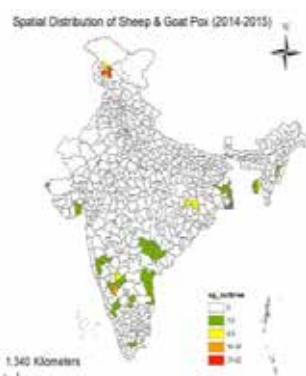
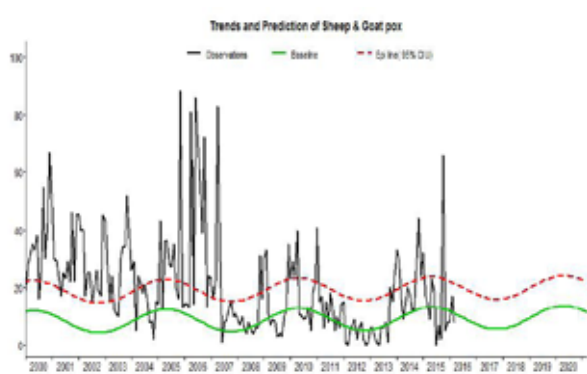
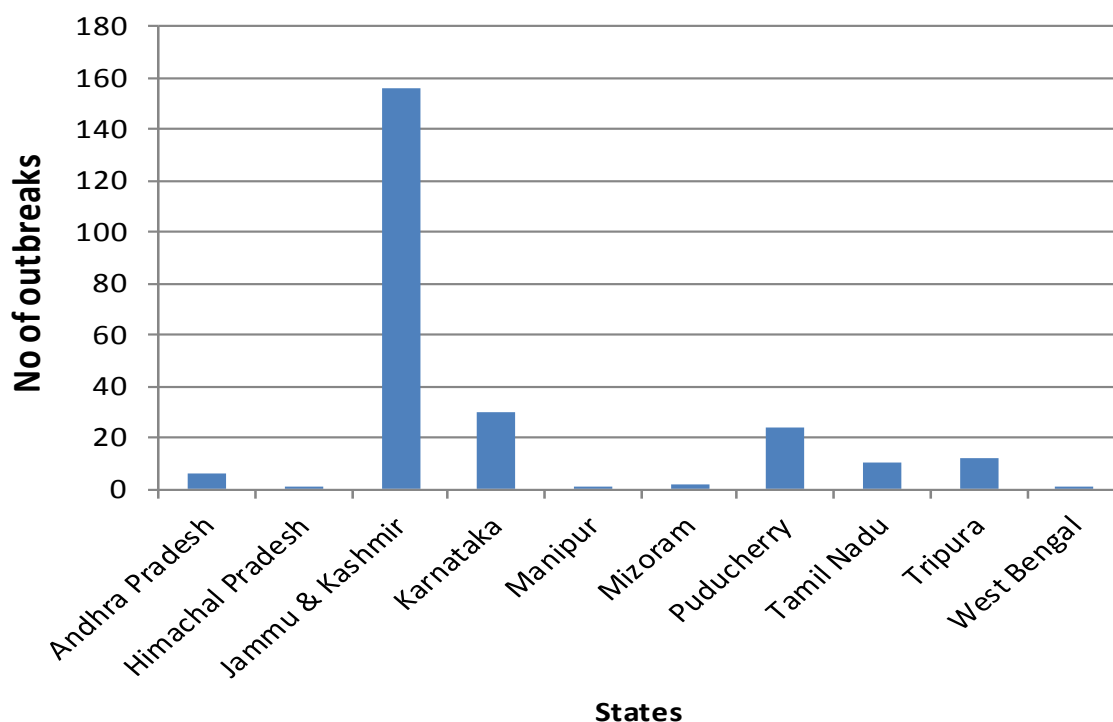
### Rabies



### Sheep and Goat Pox:

The disease outbreaks were mostly concentrated in southern part of India. A total of 243 outbreaks were reported in 10 states (Andhra Pradesh, Himachal Pradesh, Jammu & Kashmir, Karnataka, Manipur, Mizoram, Puducherry, Tamil Nadu, Tripura, West Bengal). The largest number of outbreaks was recorded in the state of Jammu & Kashmir (n=156). Disease outbreak was not observed in the month of July 2015. Spatial distribution of sheep and goat Pox disease is shown in the map and the number of outbreaks appeared more in southern region during 2014-15. Trend line shows a steady state.

**Sheep and Goat Pox**

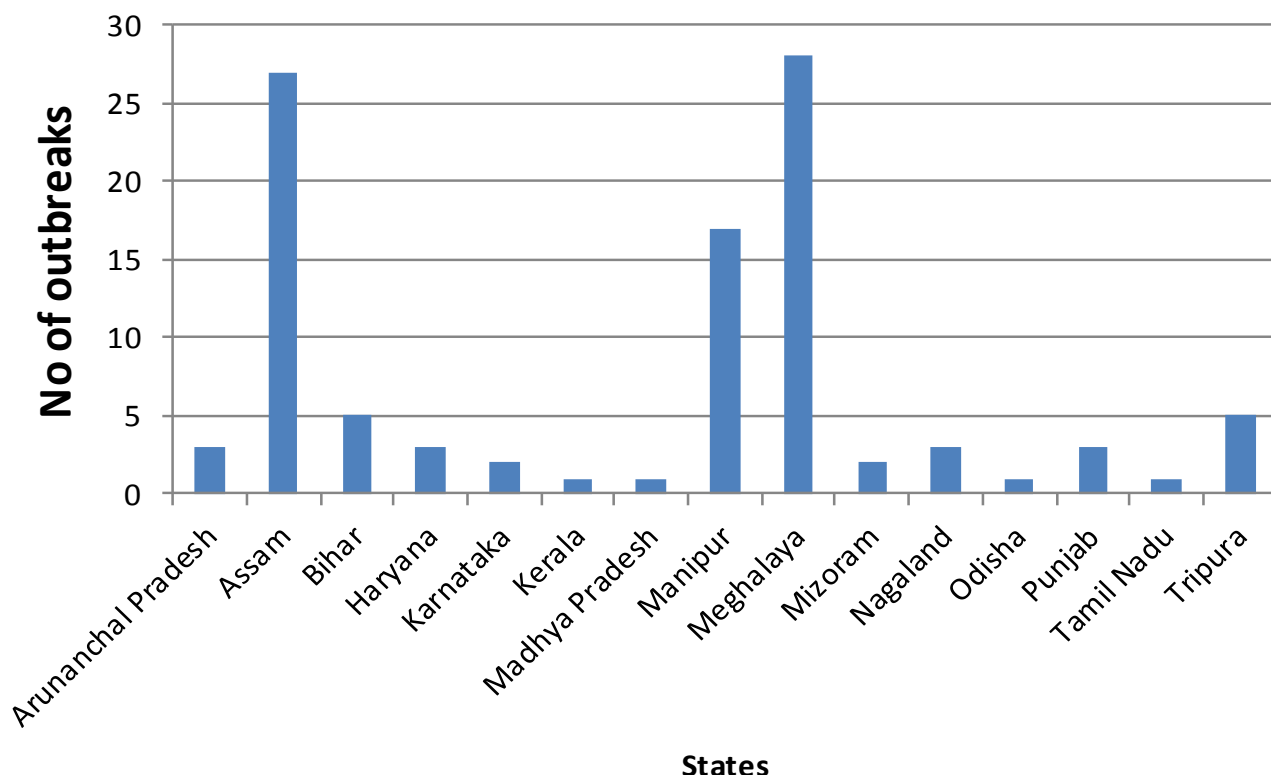


### Classical Swine Fever:

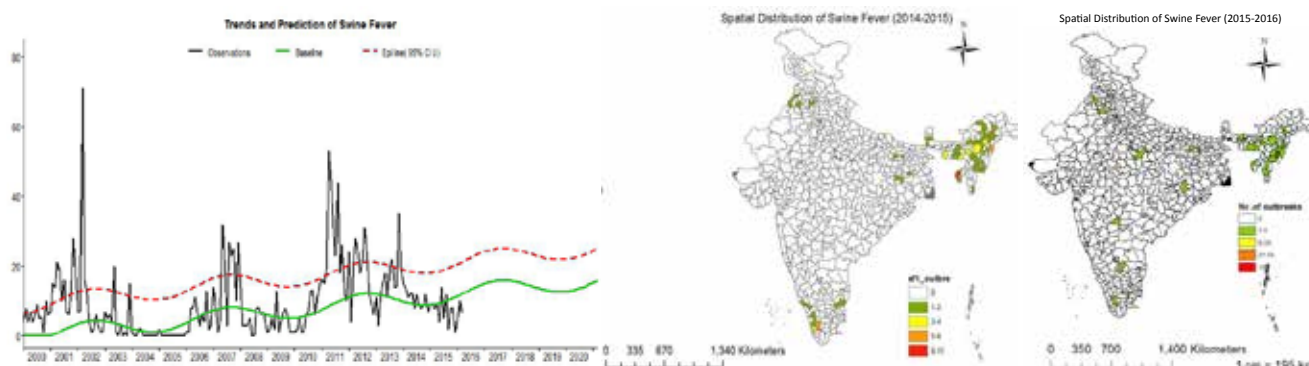
A total of 103 outbreaks were recorded in the country. The disease outbreaks were mostly concentrated at north eastern part of India. The species wise details of outbreaks are given in the Fig below. Spatial distribution of swine fever disease is shown in the map. Trend line shows upward trend, which is a concern.



### Classical Swine Fever



States

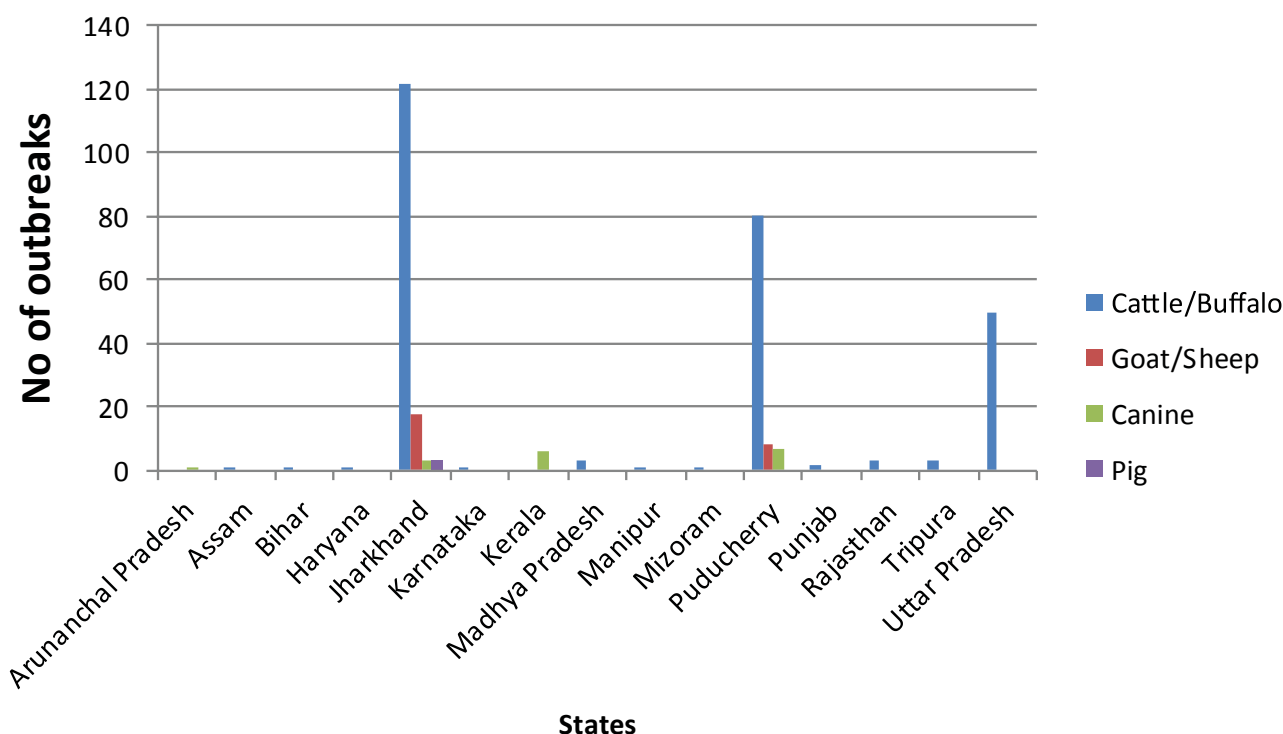


## Parasitic Diseases

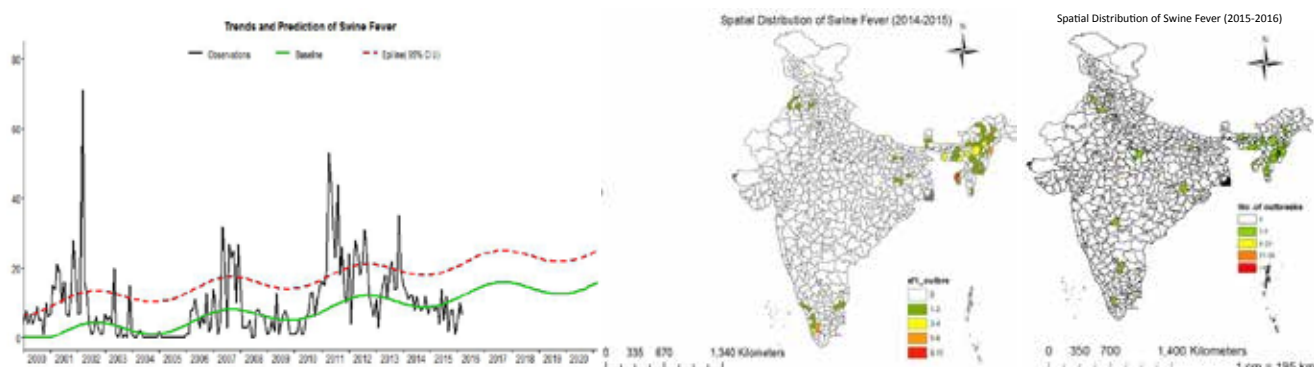
### Babesiosis:

The disease was reported in fifteen states (Arunachal Pradesh, Assam, Bihar, Haryana, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Manipur, Mizoram, Puducherry, Punjab, Rajasthan, Tripura, Uttar Pradesh). A total of 315 outbreaks of Babesiosis were recorded in the country with large number of outbreaks in the state of Jharkhand (146). Babesiosis outbreak was largely observed in cattle (188) followed by buffalo (77), goat (25), canine (17), bovine (4), pig (3) and sheep (1). The disease was observed throughout the year and has occurred in almost all the parts of India. The species wise details of outbreaks are given in the Fig below. Spatial distribution of babesiosis disease is shown in the map. Trend line shows upward trend.

### Babesiosis



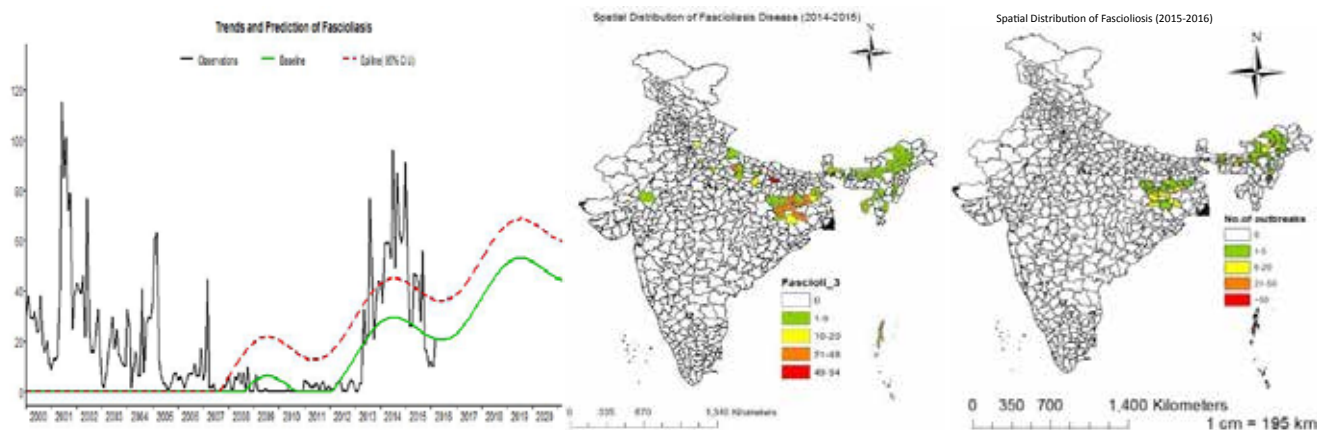
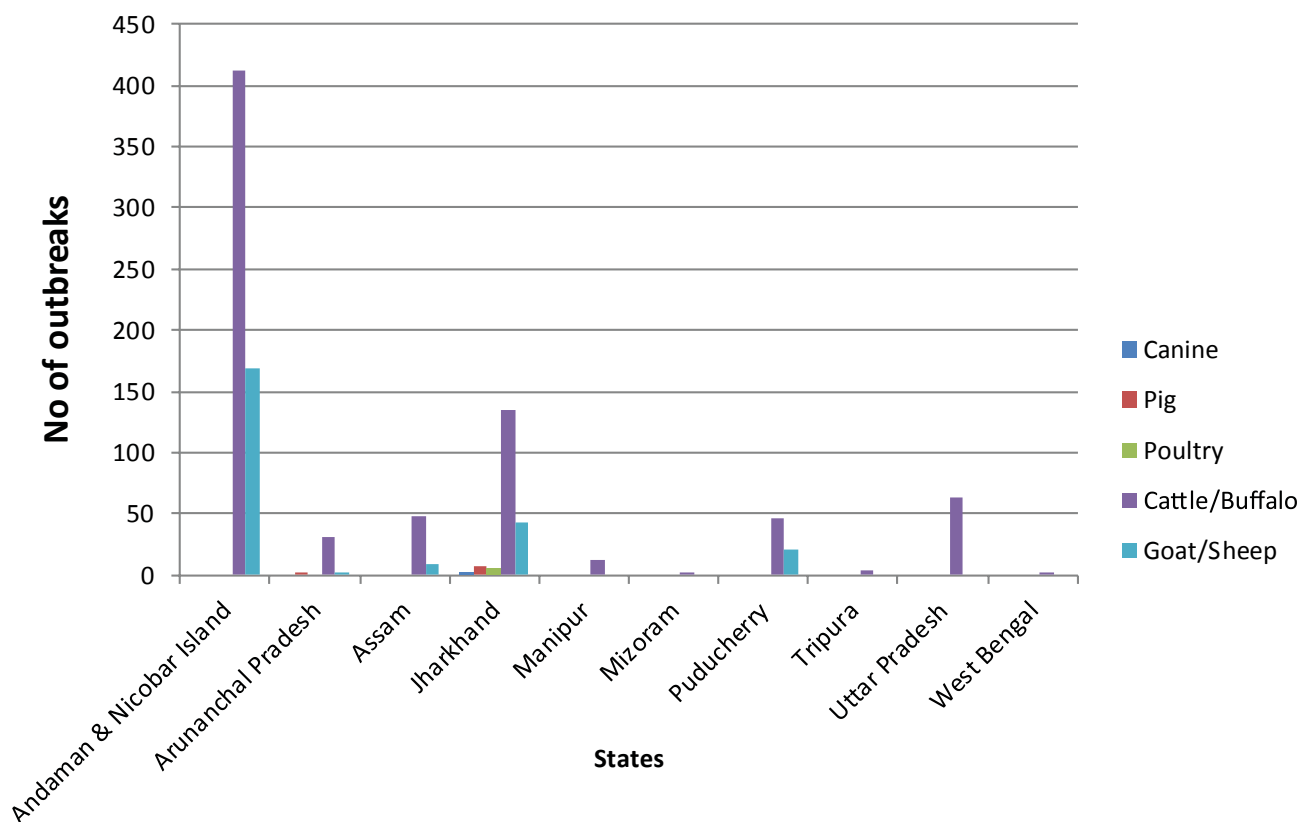
### States



### Fascioliosis:

A total of 1014 outbreaks were recorded in the 10 states of the country (Andaman & Nicobar Island, Arunachal Pradesh, Assam, Jharkhand, Manipur, Mizoram, Puducherry, Tripura, Uttar Pradesh, West Bengal). Cattle, buffalo and goat were the species affected in that order with 998 outbreaks in the former species. The species wise details of outbreaks are given in the Fig below. Spatial distribution of Fascioliosis disease is shown in the map and like in the year 2013-14, the disease outbreaks were mostly concentrated at north-eastern part of India. Trend line shows upward trend.

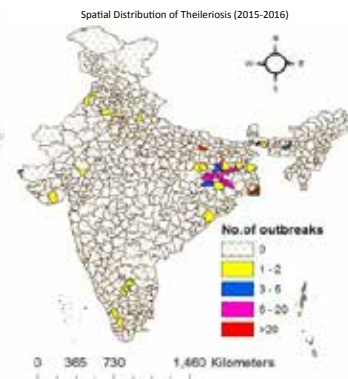
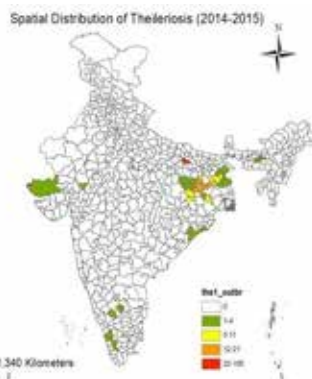
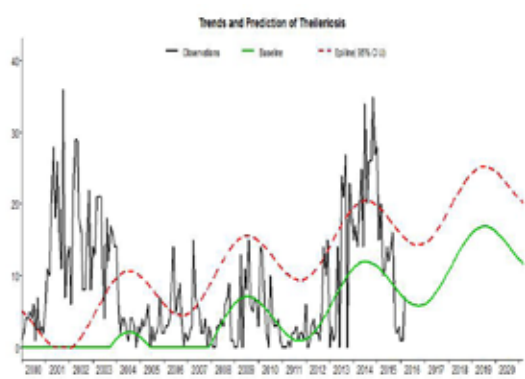
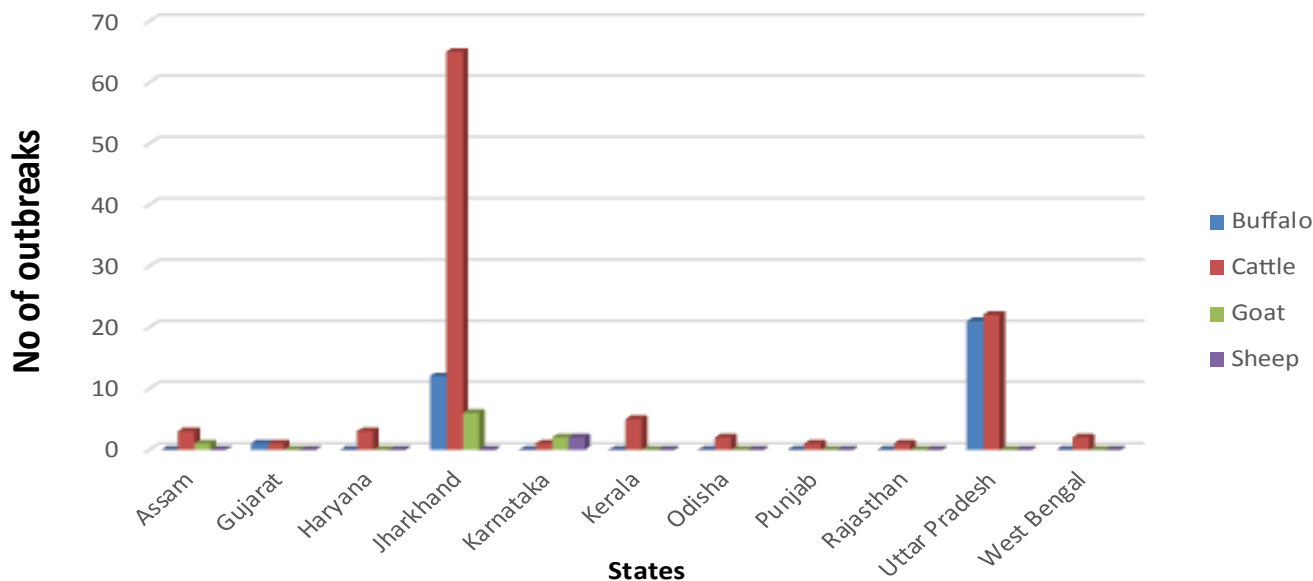
## Fasciolosis



## Theileriosis:

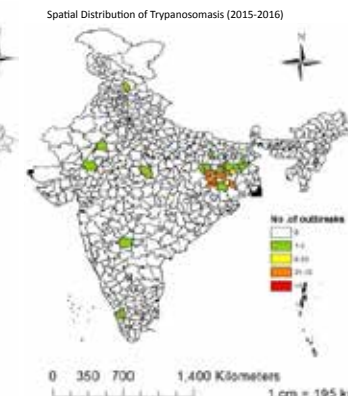
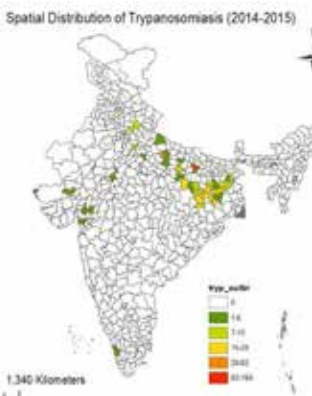
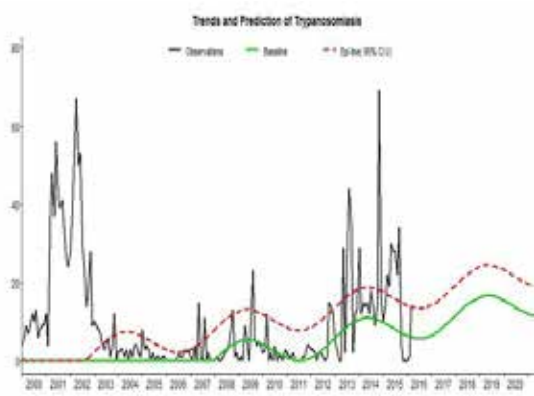
The disease was reported in eleven states (Assam, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Odisha, Punjab, Rajasthan, Uttar Pradesh, West Bengal). A total of 151 outbreaks of babesiosis were recorded in the country with large number of outbreaks in the state of Jharkhand (83). Babesiosis outbreak was largely observed in cattle (106) followed by buffalo (34), goat (9) and sheep (2). The Disease was observed throughout the year and has occurred in almost all the parts of India. The species wise details of outbreaks are given in the Fig below. Spatial distribution of Theileriosis disease is shown in the map and the number of outbreaks appeared more in Gujarat during 2014-15. Trend line shows upward trend.

## Theileriosis



## Trypanosomiasis:

A total of 337 outbreaks were recorded in the country. The disease outbreaks were largely observed in Jharkhand (180) and Uttar Pradesh (141). Disease outbreak was largely observed in cattle (168) followed by buffalo (134). Spatial distribution of Trypanosomiasis disease is shown in the map. Trend line shows upward trend.







**State-wise Livestock Disease  
Scenario from AICRP on ADMAS centers**



## Andaman and Nicobar (Port Blair)

**Date of Start:** 2015

Address	Principal Investigator	Co-Principal Investigators
ICAR-Central Island Agricultural Division of Animal Science, ICAR-CIARI, PB No 181, Port Blair, A & N Islands-744101	<b>Dr. Jai Sunder</b> Principal Scientist <i>jaisunder@rediffmail.com</i>	<b>Dr. T. Sujatha</b> Scientist <i>drsujathaars@rediffmail.com</i> <b>Dr. A.K. Bardhan</b> Senior Veterinary Officer <i>anupbardhanvet@gmail.com</i>

**Fund Allotted:** Rs 7,83,000/

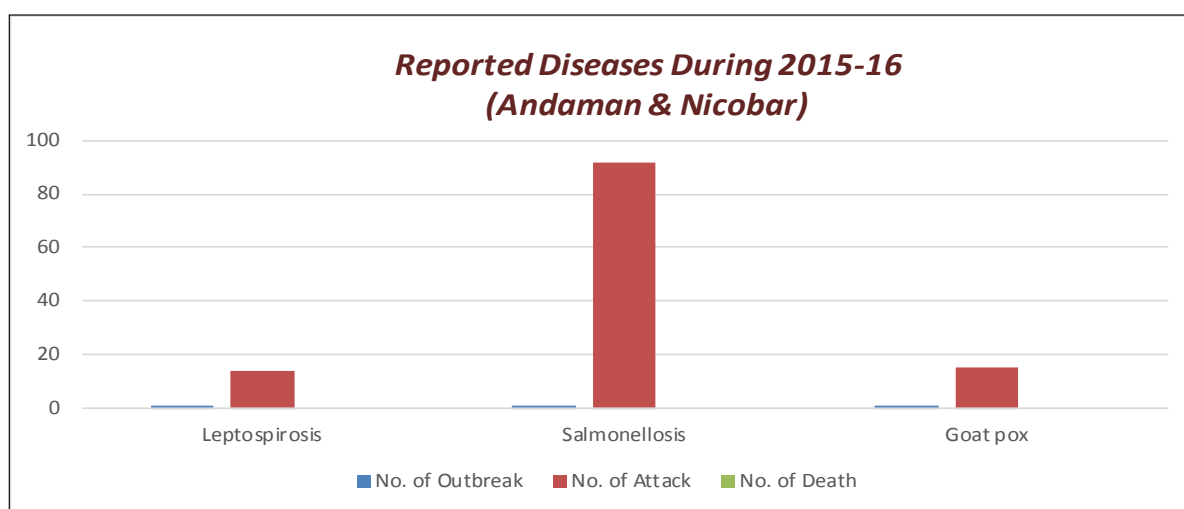
**Fund Utilized:** Rs 7,07,000/

### Summary/Achievements

- No incidence and outbreak of Anthrax, Black Quarter, Enterotoxaemia, Haemorrhagic Septicaemia, Brucellosis, Bluetongue, Classical Swine Fever, IBR, Rabies, Pestis des Petits Ruminants, Babesiosis, Theileriosis and Trypanosomiasis were reported during report period.
- However, the cases of Leptospirosis, Fascioliasis, Ascariasis, Amphistomiasis, Strongyloids, Stephanofilariasis, Mastitis, Toxocara, Diphylobothridium, Paramphistome, Monizia, Salmonellosis, Ehrlichiosis, Sheep and Goat Pox, Coccidia, Strongyle and Trichurius were reported from the livestock and poultry. A total of 20379 livestock were affected from these diseases.
- Serosurveillance revealed that out of 427 sera samples, 180 (42.15%) showed antibodies against different serovars of *Leptospira*. The serovars which showed positive results are *L. australis*, *L. autumnalis*, *L. canicola*, *L. hardzo*, *L. hebdomadis*, *L. icterohaemorrhagiae*, *L. pomona*, *L. pyrogenes*, *L. grippotyphosa* and *L. lai*.
- The percent prevalence rate of *Leptospira* ranged from 0.65 % (*L. autumnalis*) to as high as 19.61% (*L. hebdomadis*).
- Sero-Screening of 1210 sera samples for Infectious Bovine Rhinotracheitis and Brucellosis revealed that 37 samples positive to IBR and only 7 samples showed positive to Brucellosis by ELISA.
- Of total parasitic cases, 47%, 44% and 9% cases occurred in cattle, buffaloes and caprine respectively.
- Percent prevalence of parasitic cases was low in caprine (14%) followed by cattle (21%) and buffaloes (24%). The overall percent prevalence of Fascioliasis was found high in buffaloes (0.8%) followed by cattle (0.5%).
- The trend of Fascioliasis occurrence was observed erratic during the period among all species.



- The per cent prevalence of Amphistomiasis was found 0.3% in cattle, 0.2% in buffaloes and 0.4% in goats.
- The peak occurrence of Amphistomiasis was reported in buffaloes in June 2015. Seventy three percent of Amphistomiasis cases were recorded in South Andaman, while 25% of cases occurred in N & M Andaman and 2% in Nicobar Islands.
- Parasitic diseases (99%) were reported major problems followed by bacterial and viral diseases (1%).
- Seasonal trend revealed that occurrence of parasitic cases was more during monsoon season.



## Andhra Pradesh (Vijayawada)

**Date of Start:** 2014

Address	Principal Investigator	Co-Principal Investigator
Veterinary Biological & Research Institute, Veterinary Hospital campus, Labbipet, Vijayawada - 520 010	<b>Dr. L. Ratna Kumari</b> Deputy Director (AH) FAC/ Joint Director (AH) <i>ratnakumarilam@yahoo.com</i>	<b>Dr. N. Mrunalini</b> Assistant Director (AH) <i>mrunalini_n@hotmail.com</i>

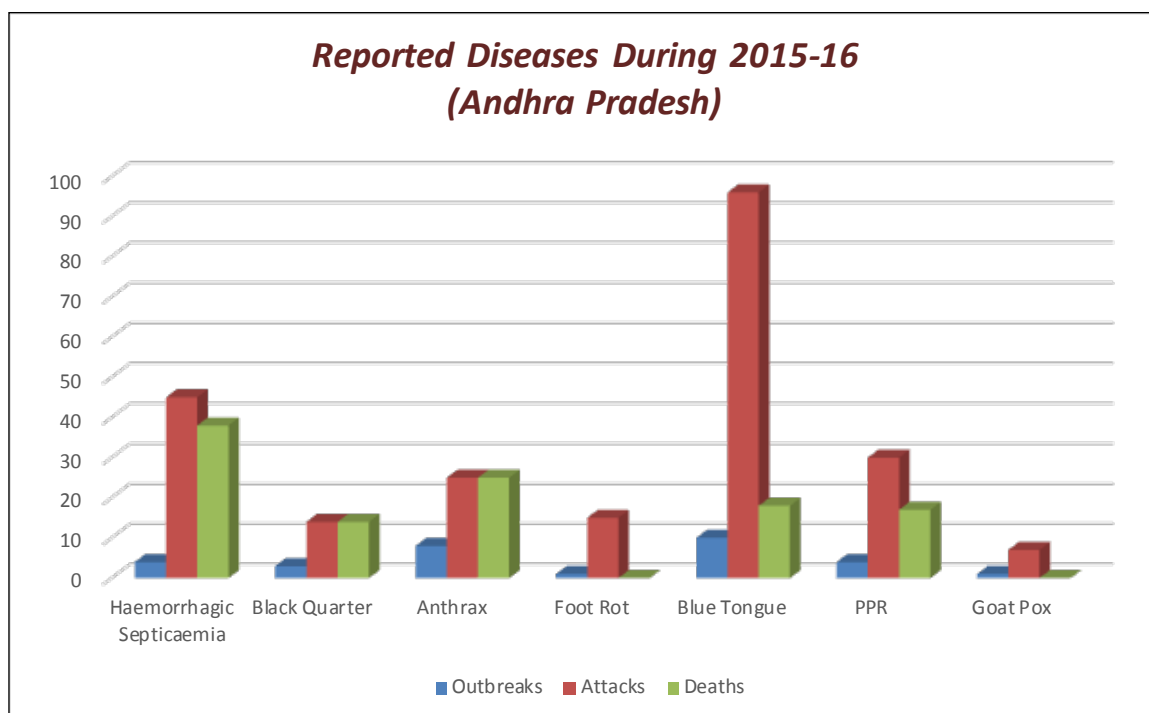
**Fund Allotted:** Rs 9,53,000/-

**Fund Utilized:** Nil \* (Allocated budget was not utilized due to freezing of funds released to Andhra Pradesh in Telangana State).

### Summary/Achievements

- Four outbreaks of Haemorrhagic Septicemia with 45 Attacks and 38 deaths were recorded in the State. 7197 vaccinations were conducted in outbreak affected area. Outbreaks were occurred in the month of November and December.

- Two outbreaks of Black Quarter were reported with 13 attacks and 100% CFR in bovines and 1 outbreak was reported in sheep with 1 attack and 1 death. 459 vaccinations (272 in bovines and 187 in sheep) were conducted in outbreak affected area.
- A total of 4,374 sera samples of different species were screened against brucellosis, of them 207 (4.73%) were found positive.
- A total of 1,169 sera samples of different species were tested by ELISA for antichlamydia antibodies of them 7 were found positive.
- A total of 676 bovine sera samples were tested for Tuberculosis and Johne's Disease by ab ELISA. Of them, 30 samples were found positive for TB and none were found positive for JD.
- Anthrax was recorded in small ruminants (8 outbreaks, 25 attacks and 25 deaths). 34,658 vaccinations were conducted in outbreaks affected areas.
- No outbreak of ET, Sheep and Goat Pox was recorded during the year.
- One outbreak of Foot-rot was recorded in small ruminants with 15 attacks. Control measures were followed in affected area to curtail the spread of the disease.
- Four outbreaks of PPR were recorded with 30 attacks and 17 deaths in sheep and goat population. 4,778 vaccinations were conducted in outbreak affected areas.
- Sheep and Goat Pox was recorded with 1 outbreak, 7 attacks without any mortality. 150 vaccinations were conducted in outbreak affected area.
- Ten outbreaks of Bluetongue were recorded with, 96 attacks and 18 deaths. A total of 25,444 vaccinations were conducted in the outbreaks area.
- A total 1,620 bovine sera samples were screened for IBR by ELISA, of which 425 were found sero positive.
- During the year Trypanosomiasis, Microfilariasis, Theilariasis and Amphistomosis were reported in bovines from different districts of State. Amphistomosis, Fasciolosis and Strongylosis were recorded in sheep and goat population.



## Arunachal Pradesh (Nirjuli)

**Date of Start:** 2015

Address	Principal Investigator	Co-Principal Investigator
Disease Investigation Laboratory, Department of Animal Husbandry & Veterinary, Nirjuli, Itanagar-791109	<b>Dr. Karbom Basar</b> Disease Investigating Officer <i>dioarunachalpradesh@gmail.com</i>	<b>Dr. Gyamnya Baki Garam</b> <i>niyango@gmail.com</i>

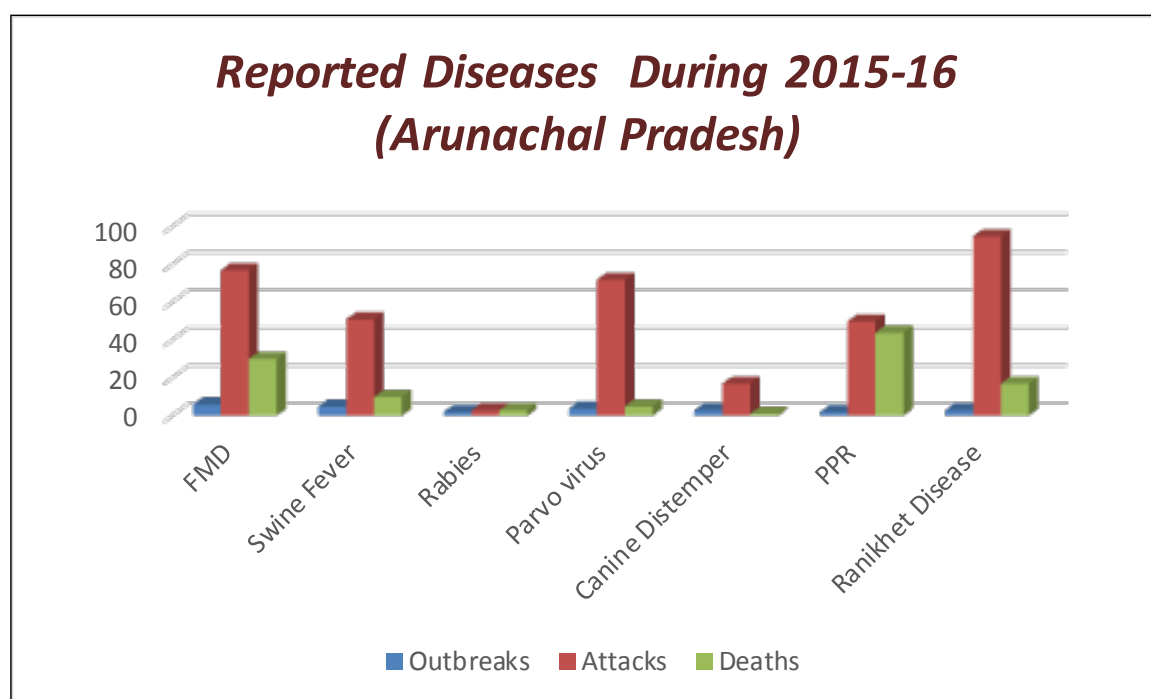
**Fund Allotted:** Rs 7,83,000/-

**Fund Utilized:** Rs 7,83,000/-

### Summary/Achievements

- During the report year most of the confirmed viral diseases outbreaks were reported. FMD (6 outbreaks, 77 attacks, 30 deaths), Classical Swine fever (5 outbreaks, 51 attacks, 10 deaths), Rabies (2 outbreaks, 3 attacks, 3 deaths), Canine Distemper (3 outbreaks, 17 attacks, 1 death), Parvo virus (3 outbreaks, 72 attacks, 5 deaths), PPR (2 outbreaks, 50 attacks, 44 deaths), Ranikhet Disease (3 outbreaks, 95 attacks, 17 deaths).
- The serosurveillance for Brucella, Tuberculosis, PPR, PRRS, Circovirus and Ranikhet Disease were routinely conducted. Sera samples were sent to NERDDL and ADMaC centre Khanapara, Assam for confirmative diagnosis.

- Highest outbreak and attacks were recorded for FMD without any seasonal trend.
- There was marked increase in the outbreaks of PPR this year.
- There was constant outbreak of Rabies every years and it is mostly recorded in dogs only. So far there was no report of Rabies in other animals.
- Orf and PPR were reported mostly from the places adjoining Assam-Arunachal Border. The animal transported from other neighbour State like Assam may the reason for the introduction of Orf and PPR in the State.
- Babesia and Theileria species are mostly seen in the blood sample and trypanosome species were rarely seen so far.
- Most of the places in Arunachal Pradesh are very hard to approach due to its hilly terrain and lack of proper road connectivity so this may be causing hardship in getting actual outbreak report on time.
- Despite the regular vaccination programme carried out at time there was repeated outbreak of the same diseases. The transportation of animals and poultry birds from neighbouring state may be the reason for this outbreak. The coverage percentage of vaccination was not so high due to hilly terrain which left the other animals unprotected. However, there was decreased in the trend of disease outbreak in the State.



## Assam (Guwahati)

**Date of Start:** 2010

Address	Principal Investigator	Co- Principal Investigators
College of Veterinary Science, Assam Agricultural University (AAU), Khanapara, Guwahati - 781022	<b>Dr. S.K. Das</b> Professor & Head, Department of Microbiology <i>drskdas53@gmail.com</i>	<b>Dr. D.K. Bhattacharyya</b> Associate Professor, Department of Microbiology <i>dilipbhatta@live.com</i>  <b>Dr. Kuntola Roy</b> Assistant Professor, Department of Parasitology <i>drkuntola79@gmail.com</i>

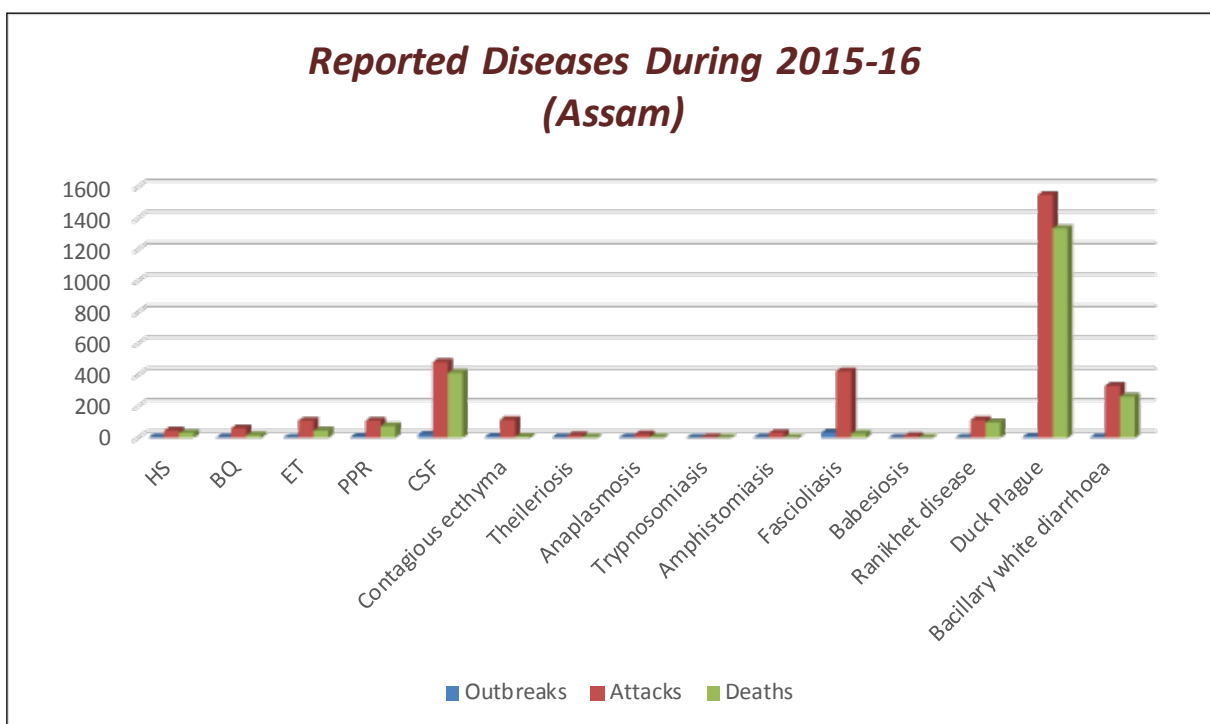
**Fund Allotted:** Rs. 9,53,000/

**Fund Utilized:** Not Provided

### Summary/Achievements

- A total of 15 diseases including various bacterial, viral and parasitic diseases were recorded.
- Among the different bacterial diseases of cattle, Enterotoxaemia, Haemorrhagic Septicaemia (HS) and Black Quarter (BQ) were the major killer diseases. Black Quarter was reported from 3 districts (Nalbari, Sivasagar, Dhemaji). Of 61 affected animals, 16 animals were died and all the outbreaks occurred in spring season. A total of five outbreaks of HS were recorded from two districts viz. Kamrup and Dhemaji. A total 45 affected animals of which 31 animals died. In Dhemaji district, the outbreaks were found more severe resulting death of 28 animals. No outbreak was seen during winter season.
- Two outbreaks of Enterotoxaemia were recorded from Sivasagar and Darrang districts in the month of March which affected 109 goats with a mortality of 45 animals.
- Bacillary White Diarrhoea was recorded as one of the important disease of poultry causing a serious problem in young chicks with three outbreaks in which 331 birds were affected of which 263 birds died.
- Peste-des Petits Ruminants (PPR) appears to be the important emerging viral diseases of goat and Classical Swine fever continue to be major diseases of Pigs, which caused heavy mortality among pig population.
- Duck plague was another disease which caused heavy mortality among the duck population.
- Among the viral diseases twenty two outbreaks of Classical Swine Fever were recorded from 7 districts affecting 483 pigs of which 414 pigs were died. The highest numbers of mortality (120) was recorded from Sivasagar district.
- Seven outbreaks of PPR were recorded from 4 district affecting 109 animals of which 74 animals died. Highest outbreak and mortality rate was reported from Kamrup district.

- Duck Plague was found to be a major devastating disease as a total of 1549 ducks got infection of which 1,335 died.
- One outbreaks of Ranikhet Disease was reported with 85.84% mortality (97 birds died out of 113 affected birds).
- A total of 9 outbreaks of Contagious Ecthyma were reported from 7 districts. Highest outbreak was recorded in Kamrup and Sonitpur (2 each) followed by single outbreak in each from Baksa, Morigaon, Dibrugarh, Dhemaji and Karimgunj districts of Assam. A total of 114 animals got affected with a mortality rate of 7.01%.
- The hot humid climate of Assam plays an important role in the occurrence of parasitic disease. Parasitic infestation like Fascioliasis, Paramphistomiasis, Theileriosis, Trypanosomiasis, Anaplasmosis, Babesiosis and Ascariasis in cattle, buffaloes and goats were mostly reported during the report year.



## Bihar (Patna)

**Date of Start:** 2005

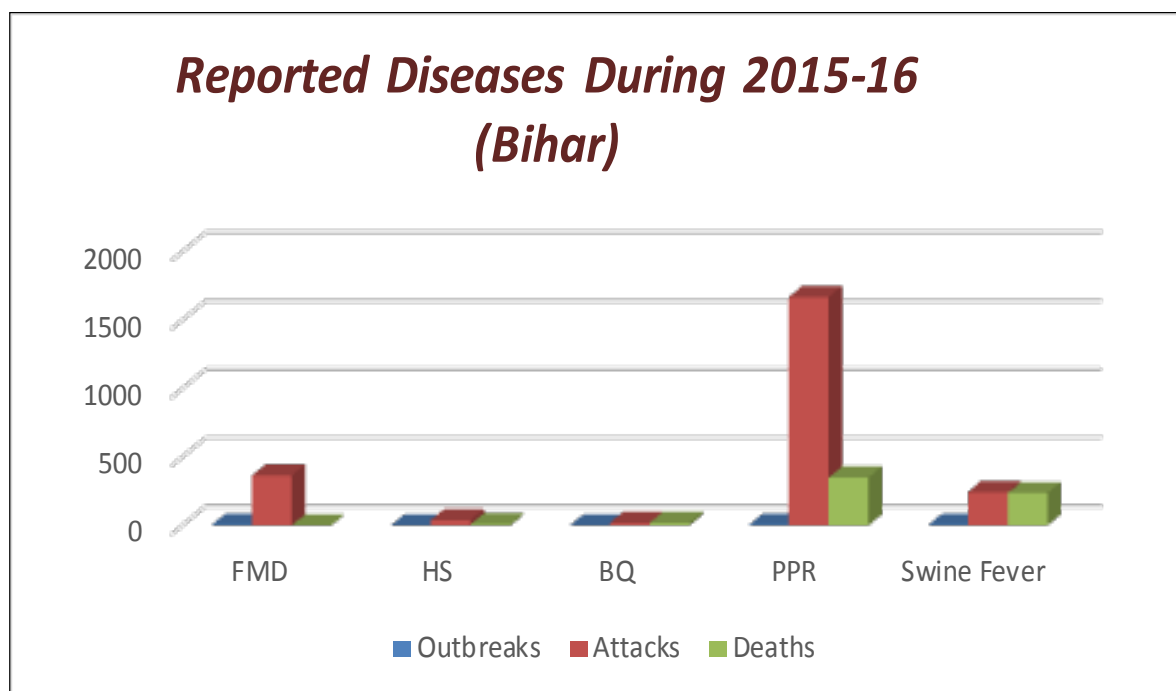
Address	Principal Investigator	Co-Principal Investigators
AICRP-ADMAS, Bihar Veterinary College, Bihar Agricultural University, Sabour, Patna-14	<b>Dr. Pankaj Kumar</b> Assistant Professor <i>pankajimmunol@gmail.com</i>	<b>Dr. Pallav Shekhar</b> Assistant Professor <i>Shekhar.medivri@gmail.com</i>  <b>Dr. Purushottam Kaushik</b> Assistant Professor <i>drkaushikvet@gmail.com</i>

**Fund Allotted:** Rs 10,33,000/-

**Fund Utilized:** Rs 7,89,346/ -

### Summary/Achievements

- During the year 2015-16, important livestock diseases reported from Bihar were FMD, HS, BQ, PPR, Classical Swine Fever, Theileriosis, Trypanosomiasis and Babesiosis.
- Two outbreaks of Haemorrhagic Septicaemia were reported from Aurangabad and Madepura districts affecting 41 cattle with 9 deaths (approximately mortality 22 %).
- Two outbreaks of Black Quarter in cattle have also been reported from Patna (12 animals affected) and Sheikhpura districts (08 animals affected), notably recorded 100% mortality.
- A total of six FMD outbreaks have been reported during the year affecting 365 cattle from Rohtas, Patna, Nalanda and Vaishali Districts of Bihar. No mortality has been recorded in FMD affected cattle from these outbreaks.
- In the last six months, a total of five PPR outbreaks have been reported affecting more than 1600 goats with mortality percentage of 21.26%. The spatial distribution of PPR is also widespread in the State right from Gaya district in the South Bihar to Supaul district in the North Bihar.
- Incidence Classical Swine fever is found to be confined in Patna district but the disease has recorded mortality percentage as high as 96.34 % (237 died out of 246 affected).
- Among protozoal infections, Theileriosis recorded approximately 55% of mortality in cattle (5 died out of 9 affected) and 73.68% mortality in buffaloes.
- Sporadic cases of Trypanosomiasis were also reported from Bhojpur district of Bihar.



## Chhattisgarh (Raipur)

**Date of Start:** 2005

Address	Principal Investigator	Co-Principal Investigator
Disease Investigation Laboratory, Animal Husbandry & Veterinary Department, Govt. of Chhattisgarh, Raipur-492001	<b>Dr. Varsha Sharma</b> Incharge Disease Investigation Laboratory <i>varsha14870@gmail.com</i>	<b>Dr. Aparna Patel</b> <i>drpatel7777@gmail.com</i>

**Fund Allotted:** Rs 10,33,000/-

**Fund Utilized:** Rs 7,01,968/-

### Summary/Achievements

- There was a decrease in outbreak trends as an outcome of massive vaccination programme of HS, BQ, FMD and Enterotoxaemia taken under ASCAD. Some intensive disease control programme like PPR control programme, NCPB (National Control Programme Brucellosis) also may be cause of decrease in outbreaks.
- No outbreak was reported since last year except one Salmonella outbreak at Government Poultry Farm, Raigarh District. The whole flock was destroyed and restocked after six months.



- Earlier PPR was very prominent in Chhattisgarh state. Since 2010-11 PPR control programme is being taken by the state. Seromonitoring has been done after post PPR vaccination and protection titer shows that year by year immunity has been improved.
- Blood protozoan and endoparasites were mostly reported during the year 2015-16. In blood protozoan diseases the Babesia was mostly reported and Fasciolosis and Amphistome were most reported endoparasites.
- In rural areas water logging in catchment areas are very common which enhances the multiplication of intermediate host like snail of different parasites provokes the parasitic infection. There are many areas in the state covered by deep rain forest leading to hot and humid climatic conditions favourable for vector growth.
- Two hundred twenty serum samples were sent to ICAR- NIVEDI for seroanalysis, of which one bovine serum sample was found positive for brucellosis and 24 samples were found positive for IBR Antibodies.

## Gujarat (Ahmedabad)

**Date of Start:** 2000

Address	Principal Investigator	Co- Principal Investigator
Office of the Deputy Director of Animal Husbandry, FMD Typing scheme, Hostel building, Polytechnic compound, Ambawadi, Ahmedabad-3800015	<b>Dr. A. N. Kanani</b> <i>amit_kanani@hotmail.com</i>	<b>Dr. Nisha Shah</b> <i>drnisha222@gmail.com</i>

**Fund Allotted:** Rs 9,53,000/-

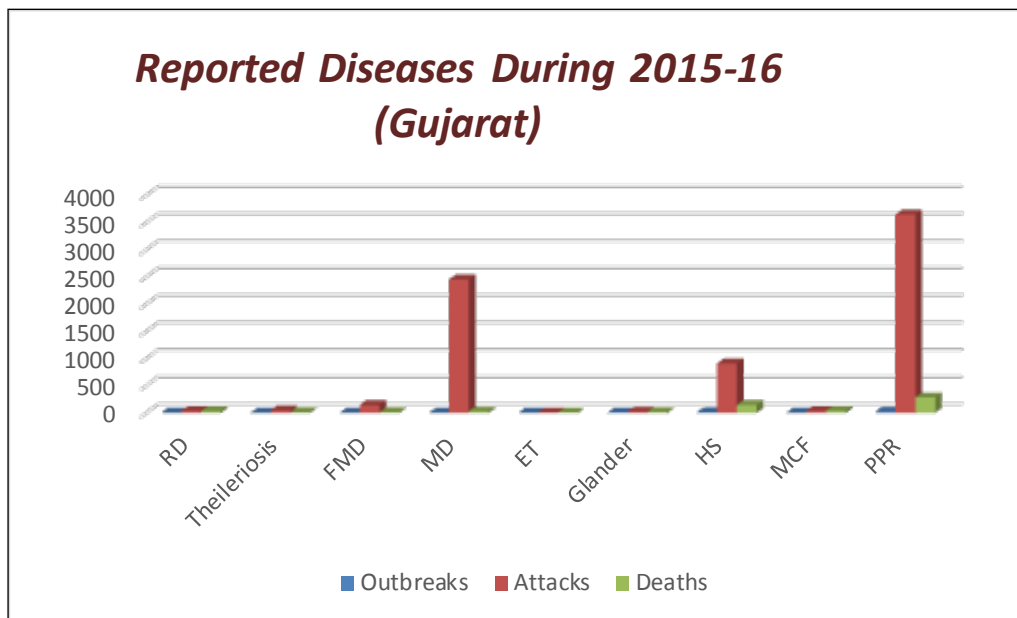
**Fund Utilized:** Rs 6,15,426/-

### Summary/Achievements

- During the year 2015-16, there were 31 outbreaks of 9 diseases including HS, FMD, PPR, MCF, Theileriosis, Glanders and Enterotoxaemia in livestock and Mareks Disease and Ranikhet in poultry reported in the State.
- Despite mass vaccination larger numbers of outbreaks of HS and PPR was reported during 2015-16.
- Reduction in number of HS outbreaks may be directly related to mass vaccination campaign during vaccination programme. The exact reason could not be ascertained.
- A total 362 deaths in 3916 attacks reported in the livestock. Two diseases reported first time in Gujarat *i.e.* Malignant Catarrhal Fever (MCF) in cattle and Glanders in equines. Outbreak of

former diseases again reoccured in the same village in January 2016.

- Compare to previous year, in 2015-16 outbreaks of CCPP, Sheep and Goat Pox, IBD, Rabies, Trypanosomiasis, Fowl Pox and CRD were not reported in Gujarat.



## Haryana (Hisar)

**Date of Start:** 2015

Address	Principal Investigator	Co-Principal Investigators
Veterinary Public Health and Epidemiology, Lala Lajpat Rai University of Veterinary and Animal Sciences (LUVAS), Hisar -125 004, Haryana	<b>Dr. N.K. Mahajan</b> Professor <i>hod.vpe@luvas.edu.in</i>	<b>Dr. Aman Kumar</b> Assistant Research Officer  <b>Dr. Dinesh Mittal</b> Assistant Scientist <i>mittalvet@yahoo.com</i>

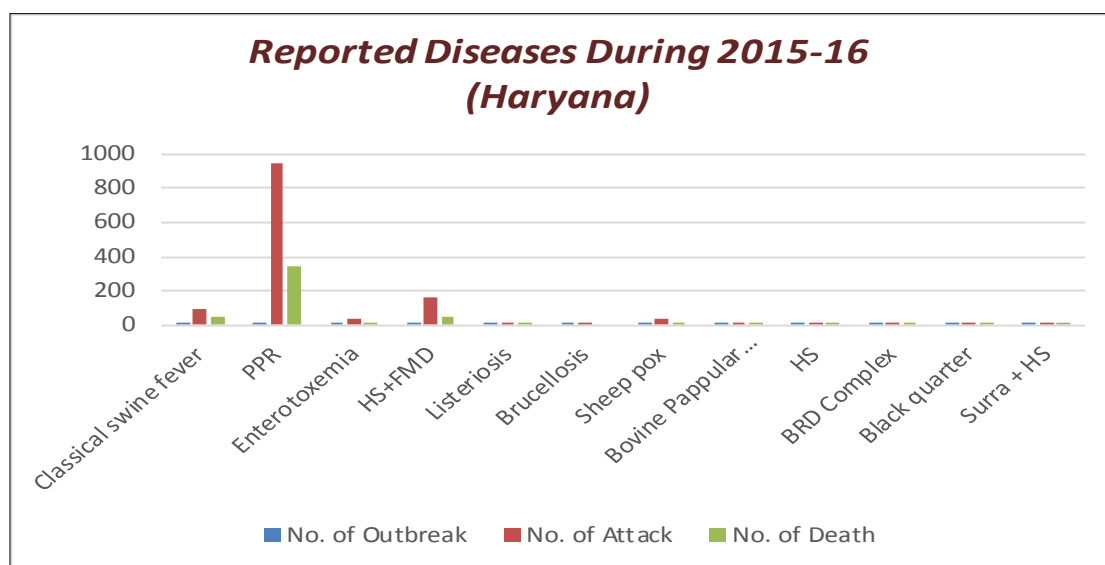
**Fund Allotted:** Rs 10,33,000/-

**Fund Utilized:** Rs 9,65,706/-

### Summary/Achievements

- During the period under report, a total of 18 outbreaks of cattle & buffaloes, 27 outbreaks of sheep & goat and 6 outbreaks of pigs have been investigated from various parts of the state as well as from adjoining state of Rajasthan.

- For the first time, an outbreak of Bovine Papular Stomatitis virus has been reported in buffalo calves in village Dhandur of Hisar district. The calves had pustules and erosions on tongue and has confirmed by virus isolation, electron microscopy of the virus and real time PCR assay. The case information has been submitted in Pubmed data base.
- Many outbreaks of PPR have been reported affecting a total of 946 sheep and goats and mortality of 343 animals in Haryana and adjoining regions of Rajasthan. Owners are unaware about vaccination of sheep and goat for PPR prevention and a wide-ranging extension work is required in this area.
- Though pig population in Haryana is not much, yet five outbreaks of Classical Swine Fever and one outbreak of Salmonellosis have been reported.
- Haemoprotozoan diseases accounted for 12 outbreaks in cattle & buffaloes. A total of seven outbreaks of Surra have been confirmed by *Trypanosoma evansi* specific latex agglutination test and PCR assay. Mixed infection of Surra and Haemorrhagic Septicaemia have been reported. Other two outbreaks of HS have been reported with concurrent infection of FMD in the State.



## Himachal Pradesh (Shimla)

**Date of Start:** 2015

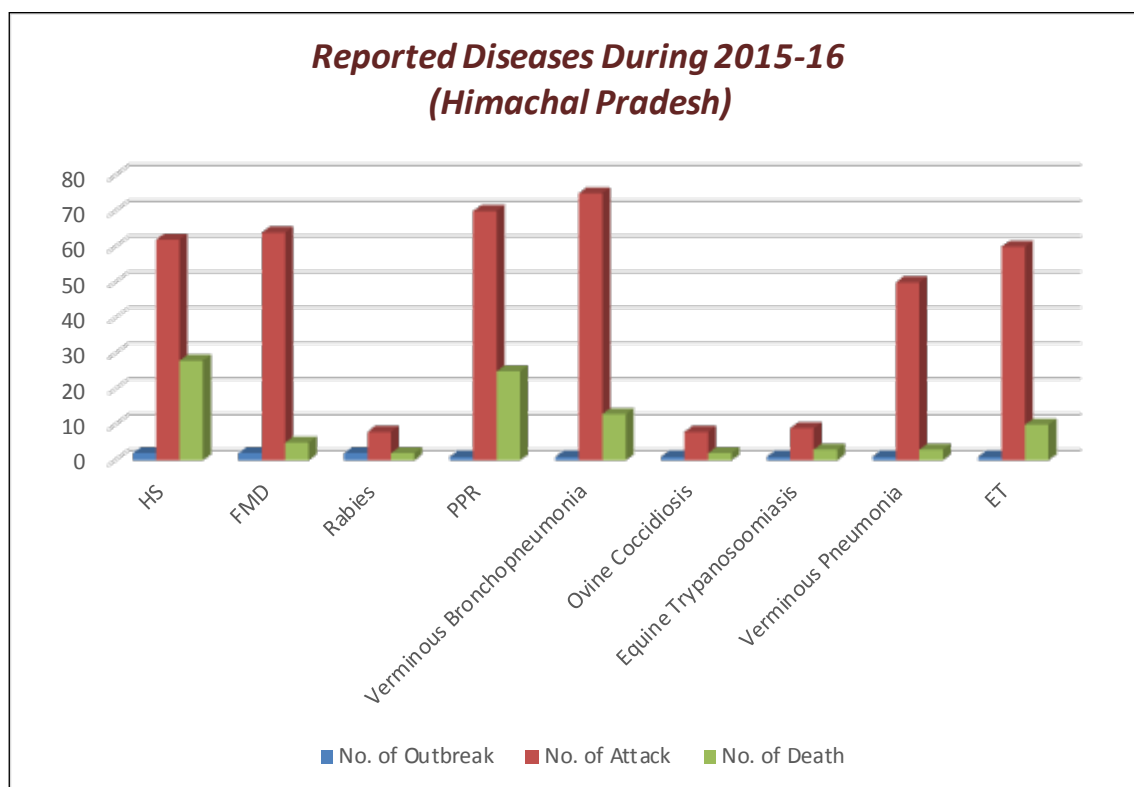
Address	Principal Investigator	Co-Principal Investigator
State Veterinary Hospital Complex, Near lift, Cart road, Shimla-171001, Himachal Pradesh	<b>Dr. Rajesh Mahajan</b> Deputy Director	<b>Dr. Vikram Singh Vashist</b> Sr. Veterinary Officer vsvashist@gmail.com

**Fund Allotted:** Rs 5,33,000/-

**Fund Utilized:** Rs 4,51,000/-

### Summary/Achievements

- Thirteen diseases were reported for the year 2015-16, in which HS (2 outbreaks, 62 attacks and 28 deaths) and FMD (2 outbreaks, 64 attacks and 5 deaths) are the top reported disease in the year.
- Shimla and Kangra have reported the two top most diseases HS and FMD for the year 2015-16.
- There was only one outbreak of Rabies in the month of October.
- August has the highest number of attacks (250) for cecal coccidiosis in the year when compared to all diseases.
- There were also reports of PPR, Verminous bronchopneumonia, Verminous pneumonia and Enterotoxemia in sheep & goats.
- The total livestock population of the State, percentage of animals affected from FMD, HS-BQ and PPR outbreaks is very low (FMD-0.002-0.006%, HS-BQ-0-0.0002% and PPR-0-0.076%), which indicates that Intensive vaccination program against FMD, HS, BQ, PPR could be the reason for reduction in the number of disease outbreak/attack.
- As per the activity plan of the project, a total of 491 serum samples from livestock (cattle, buffalo, sheep, goat and pig) were collected from the allotted epi-units (submitted to ICAR-NIVEDI) where 5 samples of Brucellosis and 52 samples of IBR has shown positive.



## Jammu & Kashmir (Srinagar)

**Date of Start:** 1999

Address	Principal Investigator	Co-Principal Investigator
Animal Husbandry Department, Red Cross Road, Gowkadal, Zakura, Srinagar-190 001, Kashmir	<b>Dr. Shamas-ud-din Makhdoomi</b> Joint Director, Institute of Animal Health and Biological Products <i>info@jkanimalhusbandry.net</i>	<b>Dr. Farooq Ahmad Jan</b> Research Officer <i>drfarooqjan@gmail.com</i>

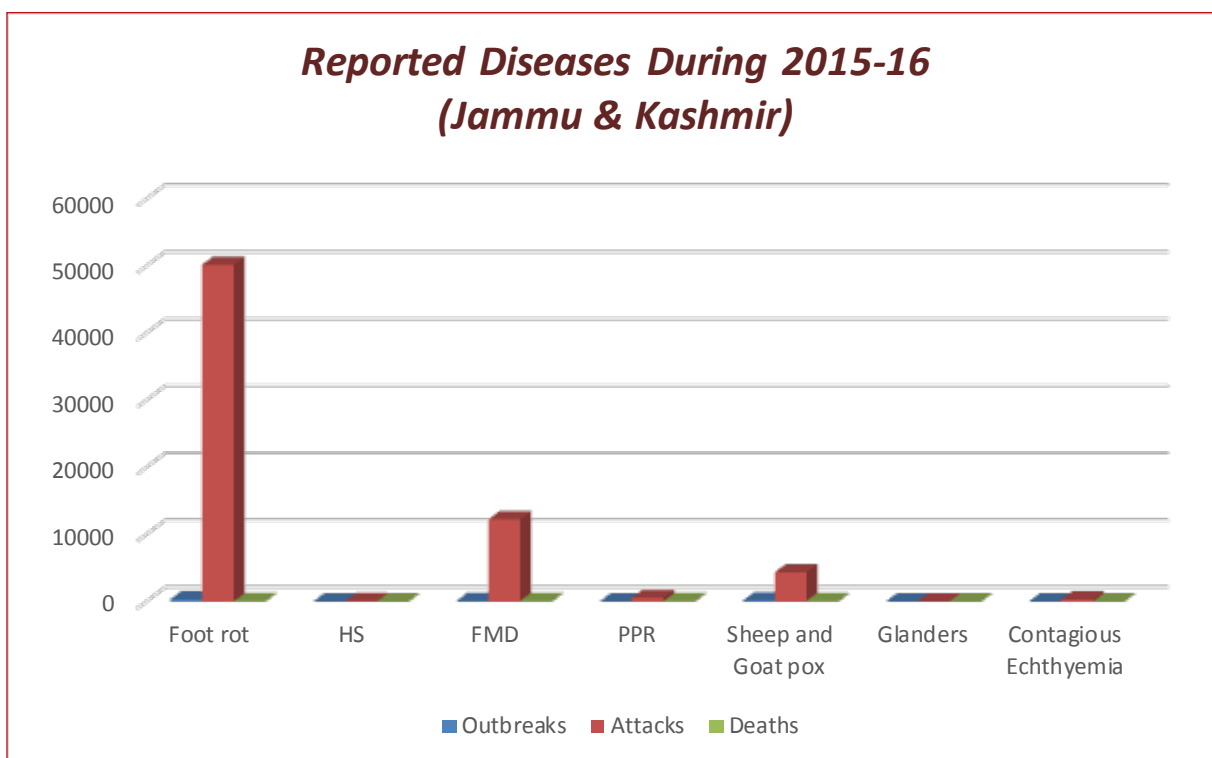
**Fund Allotted:** Rs 4,94,451/-

**Fund Utilized:** Rs 3,46,843/-

### Summary/Achievements

- During the year the monitoring and surveillance of almost 19 important infectious diseases of livestock and poultry was continued.
- No outbreak of BQ disease was recorded anywhere in the State.
- Ten outbreaks of HS were recorded in Anantnag, Jammu and Rajouri districts during the months of April, May and August affecting 43 cattle of which 24 animal died.

- Two outbreaks of the Glanders disease in horses have been recorded in Katra village of Reasi Jammu district. Of 10000 susceptible horse populations, 22 horses were affected, causing death of 16 horses.
- The Fowl Cholera has been more or less brought under control by following proper schedule of vaccination manufactured by this institute, but recent unusual mortality in broiler birds due to RD has led to great set back to the poultry industry in the state which might be due to poor management and in discriminate use of medicines in poultry.
- The FMD was most encountered in spring and autumn in the State affecting both cattle as well as sheep population in all the 22 districts. During the year under report 72 outbreaks of FMD were recorded affecting cattle population of Budgam, Srinagar, Anantnag Baramulla, Kupwara, and Samba districts of State during the months of August, September and November.
- A total 557 sera samples were tested by ELISA of which 28 samples were found positive for Brucellosis antibodies in sheep & goat population and none of samples were found positive for Brucellosis in bovines. Similarly 558 sera samples were tested by ELISA, of which 24 samples were found positive for IBR antibodies in bovines.
- A total 115 outbreaks of Sheep and Goat Pox affecting 4332 sheep and goat population in different districts of the valley throughout the year reported. Maximum out breaks have been recorded during the months of October and January followed by month of June and November.
- A total 305 outbreaks of the Foot-rot disease were recorded affecting 50171 sheep and goat population of the State and leading to death of 32 sheeps. The maximum outbreaks were recorded in hilly areas having heavy rain fall. Srinagar, Pulwama, and Anantnag were most affected, while no major outbreak was recorded rest of the districts.
- Two outbreaks of PPR with 522 attacks and 40 deaths were reported. .
- Twenty three outbreaks of the Contagious Ecthyma were recorded during almost all the months of calendar year affecting 268 Sheep and Goat population of the State.
- The parasitic infestations are usually noticed throughout the year. Certain pockets of villages Hunroo, Jumahgund, Thajwara, Gogjipather, Mujipather and Kralpora of Anantnag, Budgam and Kupwara districts are considered to be endemic zones of the parasitic diseases, particularly Ascariasis, Fascioliasis and Amphistomiasis.
- A total 2492 dung samples collected from cattle, were screened at the institute for Fascioliasis and Ascariasis, of which 35 samples were found positive for Fascioliasis, 40 samples were found positive for Ascariasis and 30 samples were found positive for Amphistomes.
- An Economic loss due to various disease in livestock was estimated and it was found around Rs. 81,68,8,550.00/.



## Jharkhand (Ranchi)

**Date of Start:** 2005

Address	Principal Investigator
Institute of Animal Health and Production, Kanke, Jharkhand, Ranchi-834006	<b>Dr. Bimal Kumar Hembram</b> Research Officer (Biological Production) <i>hembrambk@gmail.com</i>

**Fund Allotted:** Rs 5,03,000/ -

**Fund Utilized:** Not Provided

### Summary/Achievements

- No outbreak report of Brucellosis and BQ among the bacterial diseases.
- One HS outbreak was reported with mortality of 55 animals.
- The most important outbreak among the bacterial diseases was Anthrax, which occurred in Simdega district with 3 outbreaks. The disease started in the month of April 2015. The disease affected 6 villages in 3 different areas and claimed 55 animals death.
- Among the viral diseases FMD is the most reported disease in the State. 12 outbreaks were observed and the disease was reported from 12 different districts round the year.

- PPR is the second top highest disease reported with 10 outbreaks in sheep and goats.
- Higher incidence (6262) of Rabies was reported of which 16 deaths was reported in animals.
- Ranikhet Disease was also reported in few part of state but the number is not significant.
- Among the large parasites, incidence of Trypanosome tolled the highest number (11,592) followed by Babesiasis (664).
- Blood parasites like Theileria (3423) and Anaplasma showed its significant presence throughout the year and there were significant increase in incidence of aforesaid diseases observed as compared to previous year.
- Among gastrointestinal parasites, Amphistomes (18622), Ascaris (24173), Fascioliasis (9964), Schistosomiasis (3046) and Coccidiasis (70575) were reported in faecal examination.

## Karnataka (Bengaluru)

**Date of Start:** 1992

Address	Principal Investigator	Co- Principal Investigator
Institute of Animal Health & Veterinary Biologicals, KVAFSU, Hebbal, Bengaluru -560 024	<b>Dr. P. Giridhar</b> Joint Director (RDI) <i>jdirdi@yahoo.com</i>	<b>Dr. Raveendra Hegde</b> <i>ravihegde63@gmail.com</i>

**Fund Allotted:** Rs 9,38,419/-

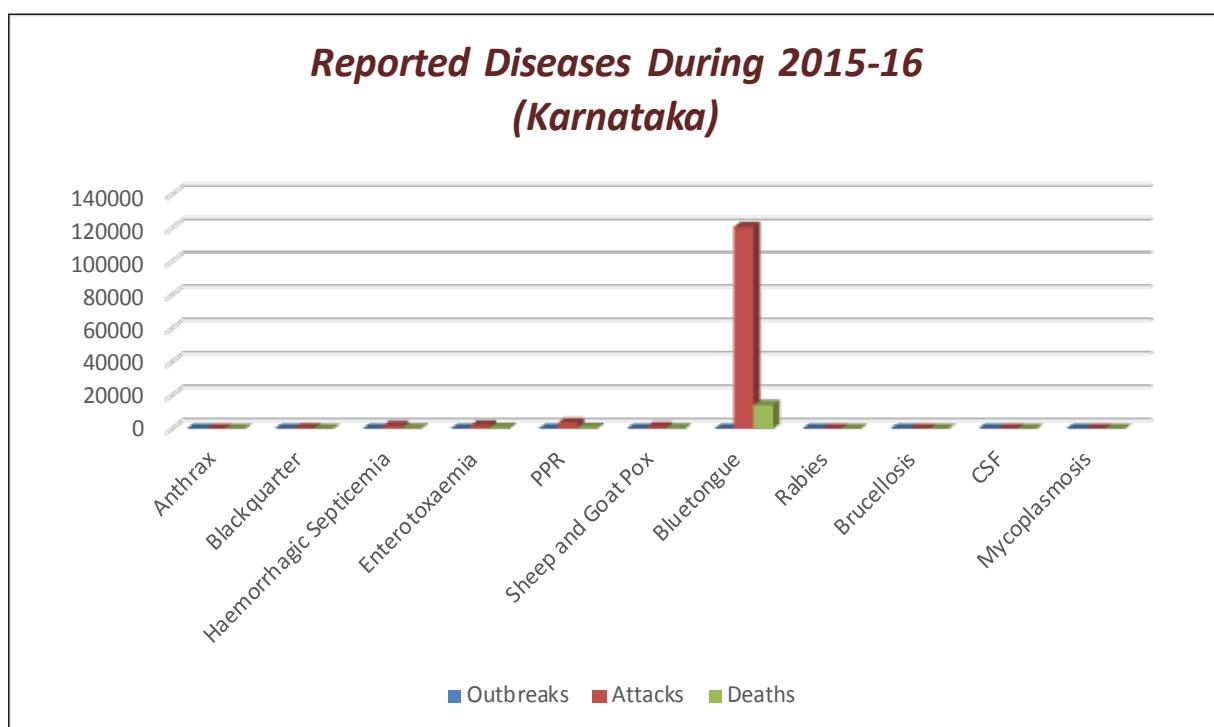
**Fund Utilized:** Rs 9,34,924/-

### Summary/Achievements

- During the year 2015-16, total 378 specified livestock disease outbreaks have been recorded in the State. A total of 260 livestock disease outbreaks in the field were investigated.
- A total of thirty seven incidences of Anthrax were reported in 9 districts affecting cattle, buffalo, sheep and goats.
- The disease Black Quarter was reported in 14 districts with 102 outbreaks, 466 attacks and 184 deaths.
- Enterotoxaemia was reported from 12 districts with 48 outbreaks, 1889 attacks and 668 deaths.
- A total of fifty three outbreaks of Haemorrhagic Septicemia were reported in 13 districts with 1648 attacks and 516 deaths affecting cattle, buffalo, sheep and goats.



- A total 4,171 sera samples were screened of which 356(8.53%) found positive for brucellosis by RBPT/ ELISA.
- Thirty outbreaks of PPR were reported in 11 districts with 3647 attacks and 184 deaths affecting sheep and goats.
- Twenty eight outbreaks of Sheep and Goat Pox were reported in 7 districts with 914 attacks and 305 deaths.
- Fifty six outbreaks of Bluetongue were reported from 14 districts affecting 120529 attacks and 14168 deaths.
- A total 12,309 blood smears was examined of which 1,180(9.58%), 99(0.80%), 27(0.21%), and 129(1.04%) were positive for Theileria, Babesia, Trypanosome and Anaplasma respectively.
- A total 10,715 faecal samples were examined of which 1,303(12.16%), 461(4.30%), 543(5.06%) and 570(5.31%) were found positive for Strongyle, Tapeworm, Amphistomes and Fascioliasis in descending order respective.



## Kerala (Palode)

**Date of Start:** 2005

Address	Principal Investigator	Co-Principal Investigators
Centre for Disease Investigation office, Palode, Pacha (PO), Thiruvananthapuram - 695 562	<b>Dr. Swapna Susan Abraham</b> <i>cdio.ahd@kerala.gov.in</i> <i>swapnasusan2003@yahoo.co.in</i>	<b>Dr. Asha T. T</b> <i>ttashapradeep@gmail.com</i> <b>Dr. Arun George</b> <i>vetdr_arungeorge@yahoo.co.in</i>

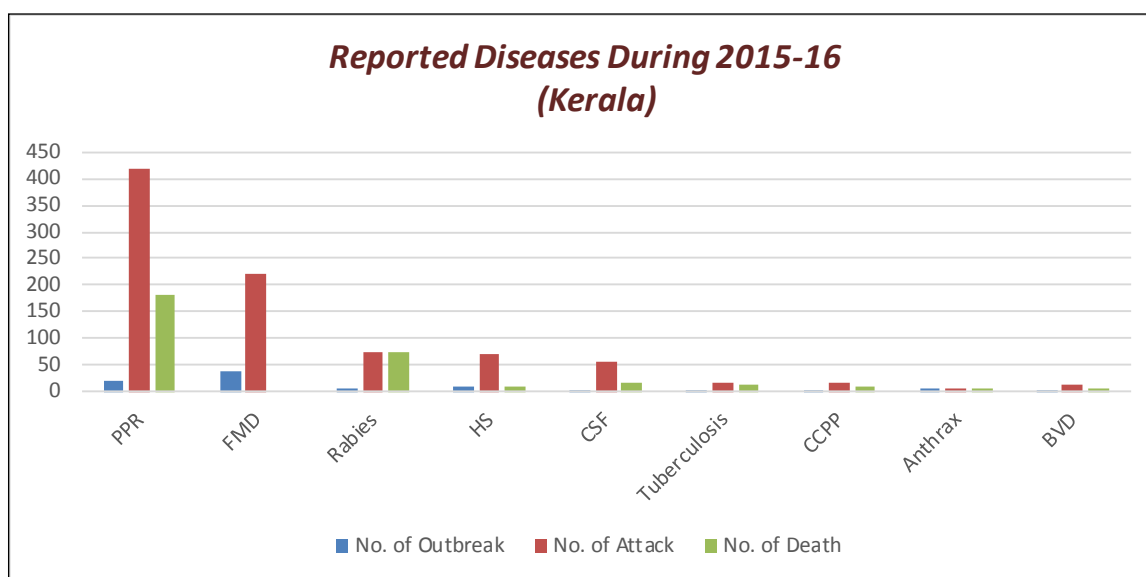
**Fund Allotted:** Rs 9,53,000/-

**Fund Utilized:** Rs 9,53,000/-

### Summary/Achievements

- HS was reported top bacterial disease from central & southern zone of the State and peaked reported during monsoon.
- Four sporadic outbreaks of Anthrax were reported from three districts during early monsoon.
- An increase trend in reporting of Bovine Tuberculosis was observed in the State.
- Sero surveillance for Brucellosis, Tuberculosis, JD, Leptospirosis, CCPP, IBR, PRRS and Anaplasmosis were conducted. Bovine brucellosis was found declining reaching almost zero level where as sero-positivity for IBR, Anaplasmosis and JD was found increasing. High rate of sero-positivity of PRRS in pigs was observed.
- Continuing its dominance as in previous years, Viral Diseases still remained the top reported disease in Kerala during the year.
- PPR (19 outbreaks, 420 attacks, 183 deaths), FMD (38 outbreaks, 220 attacks, 0 deaths) and Rabies (5 outbreaks, 73 attacks and 73 deaths) occupied the top three positions. Other diseases reported were HS (10), Anthrax (4) CSF (2), Tuberculosis (3), CCPP (1) and BVD (1).
- PPR was the top reported disease in the year and recorded marked increase in the incidence rate in comparison to previous years.
- FMD was reported from twelve districts out of fourteen districts during the year.
- Rabies is rampantly reported among ruminants as in the previous year maintaining 3<sup>rd</sup> rank in terms of attack rate and 2<sup>nd</sup> rank in death rate among livestock diseases.

- Though two outbreaks of CSF were reported, the disease was appeared in a declining trend over the last three years. This might be due to high vaccination coverage (100%) in the State.
- Three outbreaks of KFD in monkeys from a northern district were recorded.
- One probable outbreak of BVD was investigated by the AICRP centre.
- Among the 15 identified diseases under the project, BQ, Bluetongue, Sheep & Goat Pox and Fascioliasis was not reported in this year.
- Blood parasitic infestations like Babesiosis, Theileriosis and Anaplasmosis are reported throughout the year and almost throughout the state as sporadic cases.
- A total 633 sera samples of cattle (255), buffalo (22), goat (267) and pigs (89) were collected from 25 selected villages and submitted to ICAR- NIVEDI as part of National Livestock Serum Repository.
- The Centre ensured 100% budget utilization during year.
- The Centre hosted 23<sup>rd</sup> Annual Review Meet of AICRP on ADMAS at Thiruvananthapuram in the year in a befitting manner.



## Madhya Pradesh (Bhopal)

**Date of Start:** 1999

Address	Principal Investigator	Co-Principal Investigator
State Animal Disease Investigation Laboratory, Veterinary Hospital Campus, Jahangirabad, Bhopal-462 008	<b>Dr. S K Parnam</b> Joint Director <i>drparnam@gmail.com</i> <i>statedilab07@rediffmail.com</i>	<b>Dr. Jayant Tapase</b> Adl Deputy Director <i>jstatedilab07@rediffmail.com</i> <i>jstapase07@gmail.com</i>

**Fund Allotted:** Rs 9,53,000/-

**Fund Utilized:** Rs 9,52,435/-

### Summary/Achievements

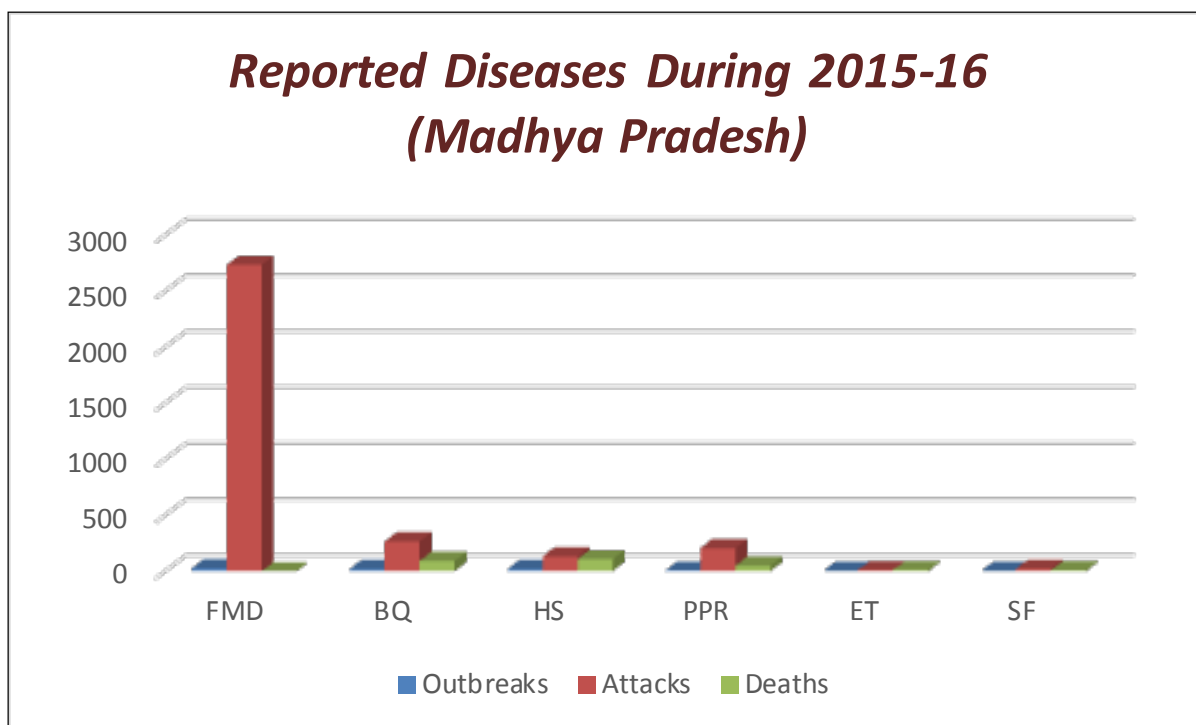
- The scientists from the collaborating unit of ADMAS, Bhopal along with the scientists working in the Divisional & Districts Animal Disease Diagnostic Laboratories in the state investigated 73 disease outbreaks *i.e.* 26 Foot and Mouth disease, 19 Black Quarter, 18 Haemorrhagic Septicaemia, 05 Pestes des Petits Ruminants, 1 Classical Swine Fever, 1 Enterotoxaemia, 2 Babesiosis and 1 Trypanosomiasis outbreaks during the year 2015-16. The outbreaks and incidences of various diseases were analysed and correlated with seasons, agro climatic zones, meteorological parameters etc.
- Priorities of disease at the State/district level were identified based on the number of outbreaks, attacks and mortality rate for different diseases.
- A total 18 outbreaks of HS were reported from 13 districts of the State. Bhopal, Rajgarh, Shivpuri, Chhindwara and Seoni district had maximum number of outbreaks. The distribution of HS outbreaks in different agro climatic zones shows maximum 6 outbreaks in Vindhya Plateau followed by 3 outbreaks in Satpura plateau. The correlation of HS outbreak with temp, humidity & rainfall shows maximum outbreaks in late monsoon and winter season respectively.
- A total 19 outbreaks of BQ were reported from 6 districts in the State. The distribution of BQ outbreaks in different agro climatic zones shows maximum 12 outbreaks in Satpura Plateau and 4 outbreaks in Vindhya plateau zones. An analysis of the relationship of soil type to outbreaks of Black Quarter from year 2007-08 to 2015-16 indicates that the disease is more in Shallow Black (Medium) followed by Medium black & Deep black and Mixed red and Black soil.
- A total 6459 samples were tested by RBPT for brucellosis of which 110 (1.70 %) samples were found positive. Out of total 2775 pooled milk 2 samples 99 (0.81%) samples were found positive for Brucellosis when tested by MRT. Under ADMAS random village serosurveillance of 23 villages

from 13 districts, 16 (2.66%) out of 601 samples were found positive for Brucellosis when tested by ELISA method.

- Five outbreaks of PPR were reported from 03 districts of the State. The disease was reported in July, September, October, November and December months. The distribution of PPR outbreaks in different agro climatic zones shows maximum outbreaks in Kymore Plateau and Satpura Hills region.
- Serosurveillance of PPR disease was conducted in 58 villages in 22 districts in the State and the results shows 49% seroprevalence for this disease.
- One CSF outbreak was reported in Chhattarpur district in the State.
- Serosurveillance study from the year 2011-12 to 2015-16, shows 38.50% sero prevalence of Classical Swine Fever disease in 58 villages.
- Under ADMAS random village serosurveillance of 23 villages from 13 districts were selected. A total 391 samples were collected from selected villages of which 47 (12 %) samples were found sero-positive for IBR.
- A total 67047 samples tested for Babesiosis in 31 districts of which 3316 (4.95%) samples were found positive. Incidences of Babesiosis were high in others species as compared to Cattle and Buffaloes. The disease is reported throughout the year with high incidences in June and October months.
- Of total 25792 samples tested, 1340 (5.20%) samples of cattle and buffalo were found positive for Theileriasis. Incidences in cattle (5.26%) were found higher than buffaloes (5.11%) and maximum number of incidences were reported in the months of July, September and October.
- Of total 64581 samples tested, 1155 (1.79%) samples were found positive for Trypanosomiasis. As reported the incidences in buffalo was high 2.61% as compared to Cattle 1.68% and maximum number of incidences were reported in October and December months.
- A total 92755 faecal samples were tested, of which 2997 (3.23%) samples were found positive for Amphistome infestation. Maximum number of positive cases was reported in month of September followed by June and August.
- A total 107481 faecal samples tested of which 4149 (3.86%) samples were found positive for Fasciola infestation. Buffaloes were found highly susceptible to this infestation (4.62 % in buffaloes as compared to 4.0 % in cattle). Maximum 493 number of positive cases were reported in the month of June followed by July and September.
- A total 40938 samples were tested of which 308 (0.75 %) samples were found positive for Schistosoma infestation. The incidences in buffalo were high 1.40% as compared to 0.60% in cattle. The seasonal pattern of the disease revealed maximum 46 positive cases in September

month followed by October and November.

- Serosurveillance of equine diseases from year 2005 to 2015 show 30.69% seroprevalence of Babesiosis infection in equine population.
- Under ADMAS random village serosurveillance programme, 601 serum samples, were collected from 23 selected villages and these samples were sent to ICAR-NIVEDI Bengaluru for further analysis.



## Maharashtra (Pune)

**Date of Start:** 1987

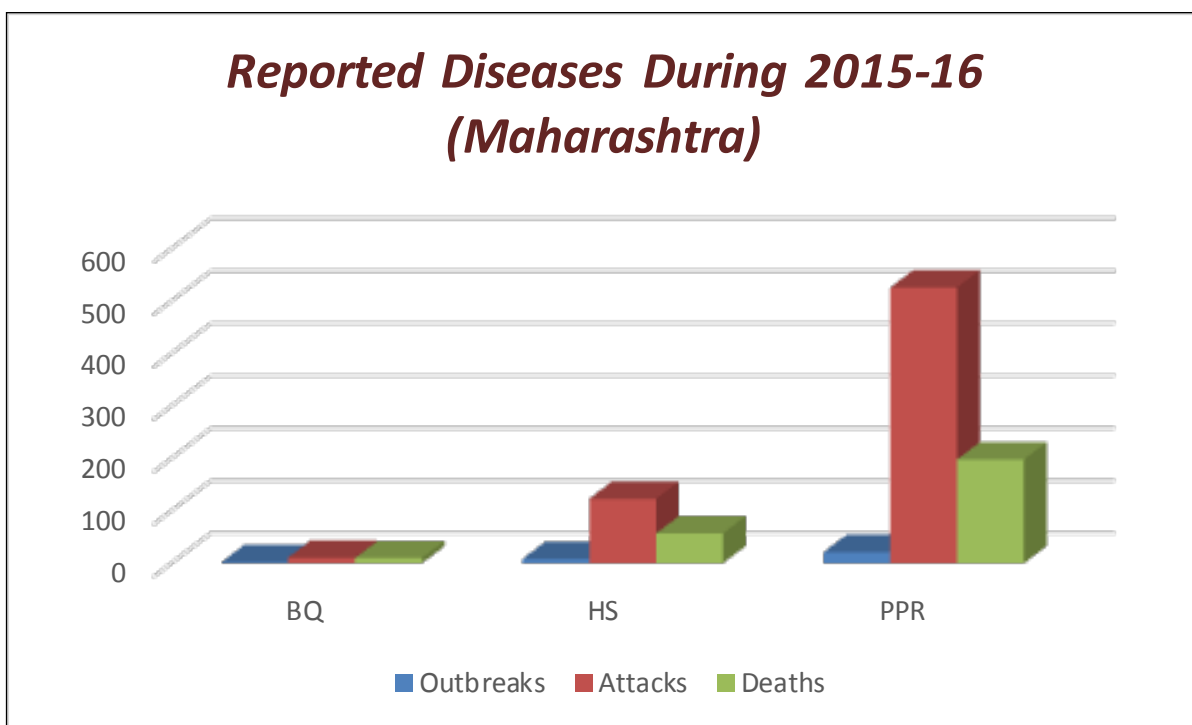
Address	Principal Investigator	Co -Principal Investigator
Disease Investigation Section (D.I.S), Western Regional Disease Diagnostic Laboratory, Aundh, Pune-411 067	<b>Dr. D. P. Gaikwad (upto 31<sup>st</sup> Dec.2015)</b> <b>Dr. D.M. Chavan (1<sup>st</sup> Jan 2015 to 31<sup>st</sup> March 2016)</b> <i>dis.pune7@gmail.com</i>	<b>Dr. S.N. Suryawanshi</b> Dy. Commissioner of Animal Husbandry (Surveillance) <i>drsns27@ymail.com</i>

**Fund Allotted:** Rs 9,53,000/-

**Fund Utilized:** Rs 9,42,000/-

## Summary/Achievements

- A total of 31 livestock disease outbreaks were reported in the state during the period under report.
- Only 10 bacterial disease outbreaks of livestock were reported and twenty one viral disease outbreaks were reported.
- Five outbreak of Haemorrhagic Septicemia and 2 outbreaks of BQ have occurred in the large ruminants. In small ruminants 21 Peste des Petits Ruminants were reported
- The incidence risk rate observed in outbreaks of Haemorrhagic Septicemia is 1.44%, mortality rate observed is 0.92% and case fatality rate observed was 63.9%.
- Spatial analysis of HS outbreaks which have occurred during last 11 years (2005-2015) shows that more outbreaks are reported from Latur, Thane, Nashik, Pune and Nanded district. 22 districts out of 35 districts experienced HS outbreaks during last 11 years.
- Long term trend of HS outbreaks during last 11 years (2005-2015) indicates that there was increased number of outbreaks in months of August, September and October with the peak in September
- Long term trend of BQ outbreaks during last 11 years (2005-2015) indicates that maximum outbreaks are reported during August and September with the peak increase of outbreaks in August.
- In case of PPR outbreaks during the year under report incidence risk rate, mortality rate and case fatality rate observed was 1.01%, 0.38% and 37.6% respectively.
- Long term trend of PPR outbreaks during last 11 years (2005-2015) indicates that there was increase in number of outbreaks during September and October and again in February and March.



## Manipur (Imphal)

**Date of Start:** 2005

Address	Principal Investigator	Co-Principal Investigator
Disease Investigation Laboratory, Directorate of Veterinary & Animal Husbandry Services, Imphal-795001	<b>Dr. N.G. Ibotombi Singh</b> <i>ibotombi7@gmail.com</i>	<b>Dr. (Mrs.) S. Binodkumari Devi</b> <i>drbinodkumaridevi@gmail.com</i>

**Fund Allotted:** Rs 9,53,000/-

**Fund Utilized:** Rs 9,53,000/-

### Summary/Achievements

- Black Quarter was the top listed disease with 13 outbreaks during 2015-16. Imphal-East had 4 (highest) outbreaks followed by Imphal-West, Thoubal, and Chandel district. In this year, the disease were recorded from new places as there were massive vaccination program in many endemic areas. Maximum outbreaks of BQ were occurred during the early and mid summer months.



- There were 5 sporadic outbreaks of Haemorrhagic Septicaemia recorded and attended by the unit at 4 districts of Thoubal, Senapati, Ukhrul and Bishnupur with 95 attacks and 26 deaths (average mortality 20.5%). The state experienced the 2<sup>nd</sup> outbreak of Highly Pathogenic Avian Influenza (Bird Flu) in a small poultry Unit of ICAR, Lamphelpat, Manipur during the month of April, 2015 and successfully controlled and contained without further spread.
- Serosurveillance of Bovine Brucellosis, Brucellosis in small ruminants (Goat & Sheep) was taken up by the unit using Protein-G ELISA kit developed by ICAR- NIVEDI. The prevalence rate of the disease in the state was found only 4.5% in cattle and 2.6% in sheep and goats.
- No Leptospirae and Bovine TB and Johnes Disease positive cases could be detected by staining and PPD intradermal test conducted at different parts of the state during the year under report.
- Detection of Pullorum Disease in some organized commercial poultry farms at all districts was conducted with Slide Agglutination Test with Salmonella Colored Antigen and Antisera procured from IAH&VB, Hebbal, Bangalore with appreciable positive cases.
- Five FMD outbreaks were recorded and attended which was letter confirmed FMD “O” serotype.
- There were 14 outbreaks of Classical Swine Fever in pigs with 470 attacks and 219 deaths of pigs with an average mortality of 46.6%.
- Sporadic 5 sporadic outbreaks of Sheep and Goat Pox and 6 Brucellosis cases were recorded.
- Serosurveillance of Bluetongue in sheep, goat and cattle was taken up in collaboration with All India Network Project on Bluetongue, Kolkata Centre. Altogether, 209 goat and sheeps sera samples and 85 cattle sera samples were tested by Indirect ELISA at AINP on BT, Belgachia, Kolkata Centre.
- During the year no canine Rabies cases were reported and confirmed following the massive vaccination coverage in the previous year in Manipur.
- Twenty Six positive cases of Babesiosis in cattle, Manipuri Pony and canine blood smear examination at febrile state of these animals in Imphal-East, Imphal-West, Thoubal, Bishnupur, Chandel and Churachandpur districts of the State.
- A total 2160 livestock faecal samples were examined as routine examination to detect parasitic load in animals.
- Cases of Fascioliasis and Amphistomiasis in cattle and buffalo were detected by routine faecal examination and at Veterinary Aid Camps.
- Outbreaks of major poultry diseases in various parts of the State viz RD, IBD, mixed infections of the two with CRD, Colibacillosis, Coccidiosis, Fowl Pox, Salmonellosis/Pullorum Disease, Coccidiosis and BWD reported.

## Meghalaya (Barapani)

**Date of Start:** 2011

Address	Principal Investigator	Co-Principal Investigators
Division of Animal Health, ICAR Research Complex for NEH Region, Umiam, Barapani-793 103	<b>Dr. (Mrs) I. Shakuntala</b> <i>ishakuntala92@gmail.com</i>	<b>Dr. ArnabSen</b> <i>arnabsen123@gmail.com</i> <b>Dr. Sandeep Ghatak</b> <i>ghataksnd@rediffmail.com</i> <b>Dr. Rajkumari Sanjukta</b> <i>rajkumari.sanjukta@gmail.com</i> <b>Dr. K. Puro</b> <i>akulepuro@rediffmail.com</i> <b>Dr. Samir Das</b> <i>drsamirvph@yahoo.com</i>

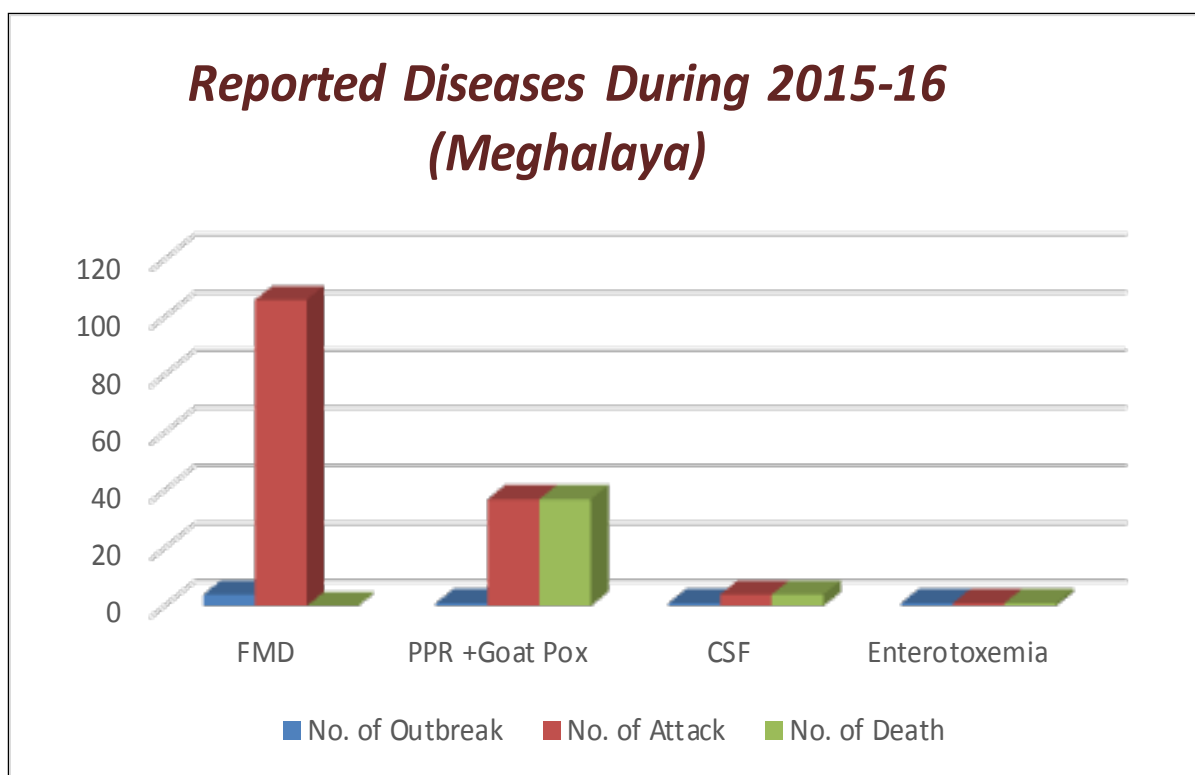
**Fund Allotted:** Rs 9,53,000/-

**Fund Utilized:** Rs 9,31,662/-

### Summary/Achievements

- The prevailing major livestock diseases reported was Foot and Mouth Disease (FMD), Haemorrhagic Septicaemia (HS), Black Quarter (BQ) and Classical Swine Fever (CSF) during the period under report.
- Four outbreaks of FMD were reported from East Khasi Hills and West Khasi Hills. However, maximum number of cases was reported from South West Garo Hills district.
- Along with these major diseases, Peste-des-Petits Ruminants (PPR), Sheep and Goat Pox, Enterotoxemia, and Brucellosis were also investigated in the State.
- Two outbreaks of Bovine FMD, one outbreak each of CSF and Peste-des-Petits Ruminants (PPR) with Sheep and Goat Pox infection were investigated in Ri-Bhoi district.
- Serosurveillance of important livestock diseases revealed presence of seropositive animals for Brucellosis, Infectious Bovine Rhinotracheitis (IBR), Bovine Viral Diarrhoea (BVD), PPR, CSF and Porcine Reproductive and Respiratory Syndrome (PRRS). However, no seropositive animals for Bluetongue virus were recorded in the State.
- The common gastrointestinal parasites in livestock recorded were *Coccidia*, *Eimeria* and *Balantidium coli* and ova of *Strongyle sp*, *Strongyloides sp*, *Ascarops strongylina* and *A. suum*. Trematode infestation in livestock was highest in South West Khasi Hills.

- As per the activity plan of the project, a total of 503 serum samples from livestock (bovine, swine and caprine) were collected from the allotted epi-units (16 villages) and other villages covering 6 districts viz. East Khasi Hills, West Khasi Hills, East Jaintia Hills, Ri-Bhoi, West Garo Hills and South Garo Hills and submitted to ICAR- NIVEDI, for strengthening the National Livestock Sera Repository.
- Vaccine epidemiology of Classical Swine Fever and livestock movement route in Meghalaya was studied as per the recommendations of the XXIII Annual Review meet of AICRP on ADMAS.
- The economic analysis of these disease outbreaks revealed an estimated losses of Rs.3,38,800.00 in cattle, Rs.3,02,650.00 in goats and Rs.24,000.00 in pigs with an overall total losses of Rs. 6,65,450.00.



## Mizoram (Aizawl)

**Date of Start:** 2015

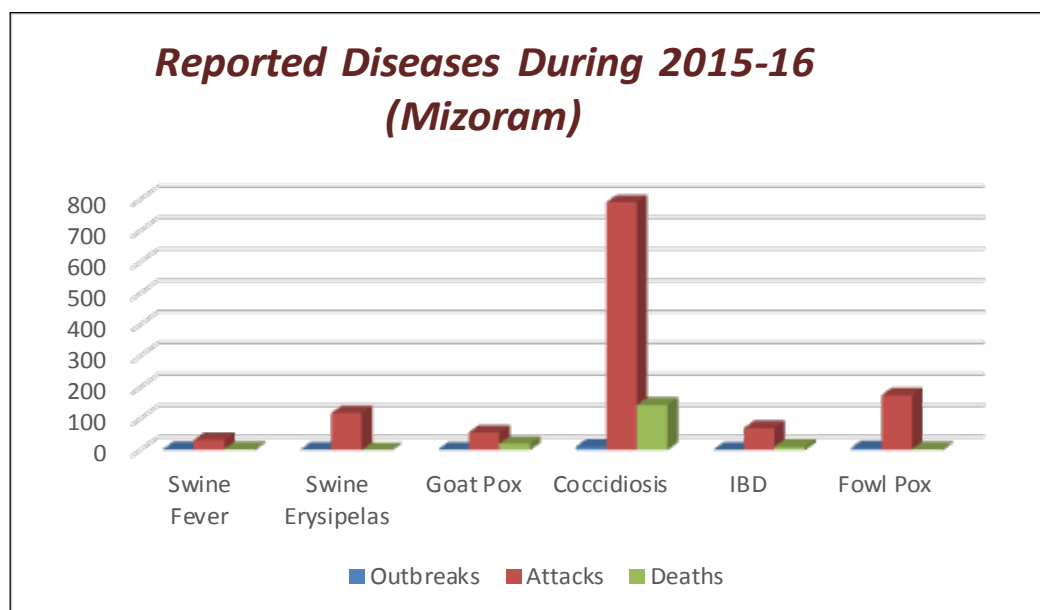
Address	Principal Investigator	Co- Principal Investigators
Disease Investigation Wing, Directorate of Animal Husbandry & Veterinary, Government of Mizoram, Khatla, Aizawl-796001	<b>Dr. Esther Lalzoliani</b> Veterinary Officer (DI) <i>esralte185@yahoo.com</i>	<b>Dr. Tapan Dutta</b> Associate professor, <i>tapandutta@rediffmail.com,</i> <i>tapandutta72@yahoo.com</i>  <b>Dr. C. Neihthangpuii</b> Veterinary Officer (H&D) <i>puiihualngo@gmail.com</i>

**Fund Allotted:** Rs 7,83,000/-

**Fund Utilized:** Rs 6,36,085/-

### Summary/Achievements

- The incidence of disease Swine Fever, PRRS, Sheep and Goat Pox, New Castle Disease, IBD, Fowl Pox, Coccidiosis etc. was recorded.
- During the reporting period the State has experience an outbreak of Sheep and Goat pox for the first time. The outbreak occurred in the month of August and September 2015 affecting 30 animals of which 10 animals died. Serrow- the state animal was also affected.
- Among the pig population, 6 Swine Fever outbreaks were reported affecting 32 animals of which 3 died. There were 2 outbreaks of Swine Erysipelas attacking 118 animals without any death report.
- Coccidiosis is most commonly encountered among poultry population. There were 23 coccidiosis outbreak affecting 2158 birds of which 166 birds died. It is followed by Fowl Pox where there were 5 outbreak report affecting 117 birds of which 104 died. There were 2 outbreaks of Infectious Bursal Disease during the reporting period affecting 273 birds with 133 death report.
- A total 475 serum samples were collected as per the sampling frame prepared by ICAR- NIVEDI and sent to ICAR- NIVEDI, Bengaluru.
- Training of Vets, Paravets and Livestock farmers and Awareness Campaign for general public were also conducted by the center in collaboration with District Animal Husbandry and Veterinary Officers at different places of the State.



## Nagaland (Kohima)

**Date of Start:** 2015

Address	Principal Investigator	Co- Principal Investigator
Animal Husbandry & Veterinary Department, Government of Nagaland, Kohima -797001	<b>Dr. Salangtemjen</b> <i>salangtemjen18@gmail.com</i>	<b>Dr. Vikuolie Mezhatu</b> <i>vikuovet@gmail.com</i>

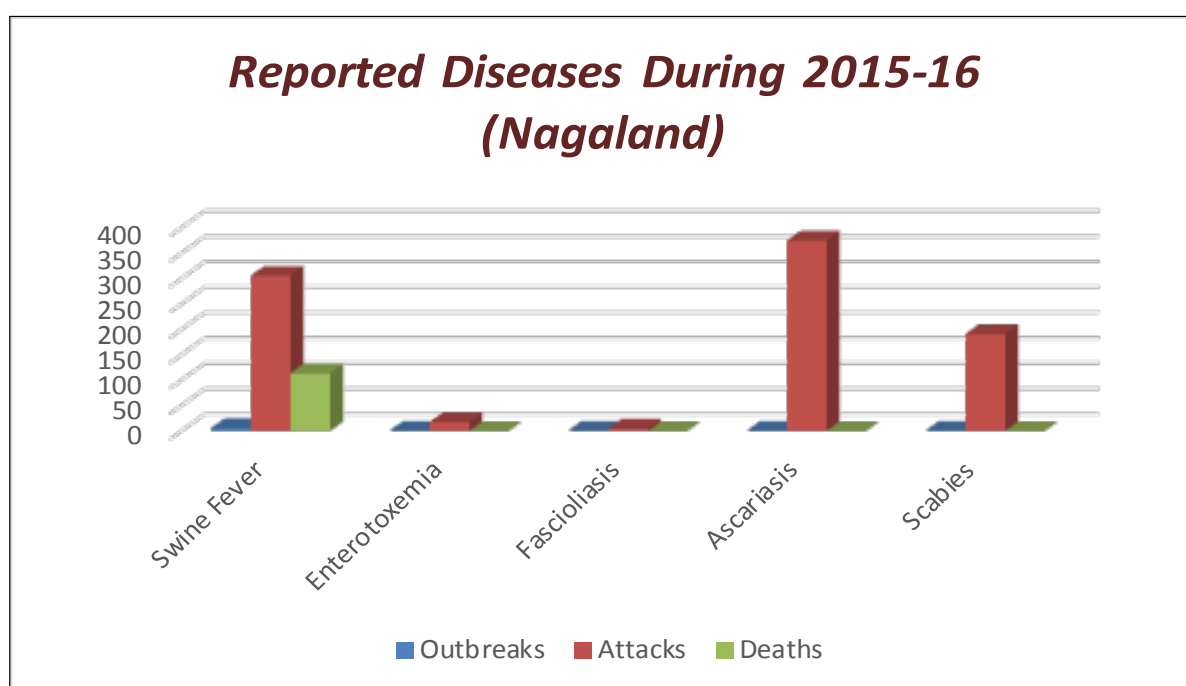
**Fund Allotted:** Rs 7,83,000/-

**Fund Utilized:** Rs 7,82,500/-

### Summary/Achievements

- There was one Enterotoxaemia outbreak reported from Zunheboto districts in the month of November 2015. In this outbreak 18 goats were attacked but no death was reported. During the reporting year 250 goats were vaccinated in Peren district.
- Swine Fever was the most reported disease with 6 outbreaks during 2015-16. Total 306 pigs were attacked out of which 114 pigs died. During the reporting year 1661 pigs were vaccinated against Classical Swine Fever.
- Incidence of Fascioliasis in cattle was reported in Zunheboto district. Total 95 faecal samples were tested of which 5 animals were found to be positive for Fascioliasis infestation.

- Incidence of Ascariasis in pigs was reported in Longleng and Zunheboto district throughout the year. Total 1451 faecal samples were tested of which 375 animals were found to be positive for *Ascaris suum* infestation.
- Incidence of canine scabies was reported in Longleng and Zunheboto district throughout the year except June, October and December month. Total 499 skin scrapings samples were tested, of which 191 animals were found to be positive for mites infestation.
- A total 546 serum samples (162 cattle, 15 buffaloes, 3 sheeps, 75 goats and 291 pigs serum samples) were collected from 11 districts of Nagaland and submitted to ICAR- NIVEDI for serosurveillance.



## Odisha (Cuttack)

**Date of Start:** 1999

Address	Principal Investigator	Co- Principal Investigator
Animal Disease Research Institute, Phulnakhara, Cuttack-754 001, Odisha	<b>Dr. Debananda Patro</b> <i>drdebananda.patro@gmail.com</i>	<b>Dr. Simant Kumar Nanda</b> <i>drsimantkumarnanda@gmail.com</i>

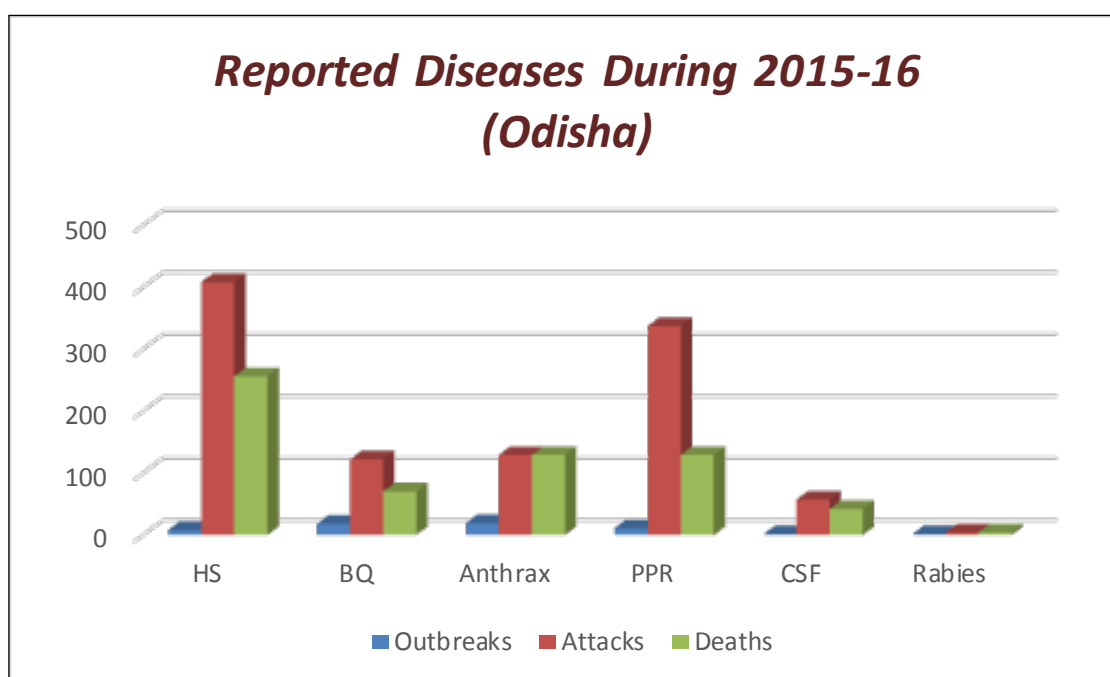
**Fund Allotted:** Rs. 9,53,000/-

**Fund Utilized:** Rs. 8,89,370/-

## Summary/Achievements

- The incidence of bacterial diseases of livestock like HS, BQ, Anthrax, Brucellosis, TB & JD and Viral diseases like Bluetongue, IBR, PPR, Classical Swine Fever and Rabies were recorded.
- Nineteen outbreaks of Anthrax occurred affecting 129 animals with 100% mortality. Of 30 districts in the State disease was reported only in 4 districts. Highest number of Anthrax outbreaks occurred in Koraput district (12 outbreaks) followed by Rayagada district (4 outbreaks).
- Eighteen outbreaks of BQ have occurred in bovines in which 122 animals were affected out of which 70 animals died. The disease was reported in 9 districts. Highest number of outbreaks was reported in Angul, Deogarh and Sundargarh district (3 outbreaks) each
- Eight outbreaks of HS occurred in different species like cattle, pig and goat, affecting 408 animals of which 256 animals died. A total of 5 outbreaks have occurred in bovines in which 19 animals were affected and 17 animals died. The incidence has been recorded in 7 districts only. Maximum number of outbreaks occurred in Kendrapada district (2 outbreaks).
- During the year under report 157 cattle in the state were tested for tuberculosis by single intradermal test using mammalian purified protein derivative tuberculin antigen as well as by immunoglobulin assay in Cuttack, Bargarh, Puri and Jagatsinghpur district and one was found to be positive reactors in LBD Farm Khapuria of Cuttack district.
- A total 157 animals were tested for JD by single intradermal test in Cuttack, Bargarh, Puri and Jagatsinghpur district. All the animals were found negative for Johne's disease
- No sero diagnosis of Leptospirosis was done in serum samples of different species.
- The sero-surveillance results of Brucellosis reveals highest in Ganjam district (5.45%) followed by Nawarangpur (2.11%) and Koraput (1.28%).
- No outbreak of Enterotoxaemia, Bluetongue, Sheep and Goat pox and CSF was found during the year 2015-16
- PPR in small ruminants emerge as the number one disease in terms of reported outbreaks and mortality. In bovines the outbreaks of Anthrax tops the list followed by BQ and HS. During the year under report, a total of 11 outbreaks were recorded affecting 337 sheep and goats causing 129 deaths in different districts. Highest number of outbreaks were recorded in the month of March (6 outbreaks). Maximum number of outbreaks was recorded in Jagatsinghpur (6 outbreaks) followed by Sambalpur (3 outbreaks) district and solitary outbreak was recorded in Kalahandi district.

- One outbreak of Rabies was reported in Dhenkanal District in the month of April-2015. Four numbers of cattle were affected and died due to history of dog bite.
- The occurrence of different gastro-intestinal parasites like nematodes, trematode and cestodes were identified.
- The prevalence of bovine, tuberculosis, John's diseases and brucellosis were studied confining to Government Livestock Breeding Farms as well as private farms.
- A total 292 cattle serum samples and 55 buffalo serum samples were collected in 22 PD-ADMAS and 2 non selected villages, of which IBR antibodies were found to be positive in 92 cattle and 11 buffalo serum respectively.
- Amphistomiasis, Fascioliasis, Babesiosis, Theileriosis, Trypanosomiasis were reported parasitic diseases and identified in prevalence study.
- During the year 2015-16 out expert team visited, collected and received including ADMAS selected villages 1033 random bovine serum samples from 17 districts. All the samples were screened at ADRI by RBPT and IDDEX ELISA Kit and at ICAR-NIVEDI Bengaluru, of which 8 samples were found positive.





## Puducherry

**Date of Start:** 2015

Address	Principal Investigator	Co- Principal Investigator
Department of Animal Husbandry & Animal welfare, Government of Puducherry, Maraimalai Adigal Salai, Puducherry-605001	<b>Dr. R. Mariya</b> <i>ahd.pon@nic.in,</i> <i>mariamaria14@rediffmail.com</i>	<b>Dr. M. Mohan</b> <i>mohanpsp@yahoo.co.in</i>

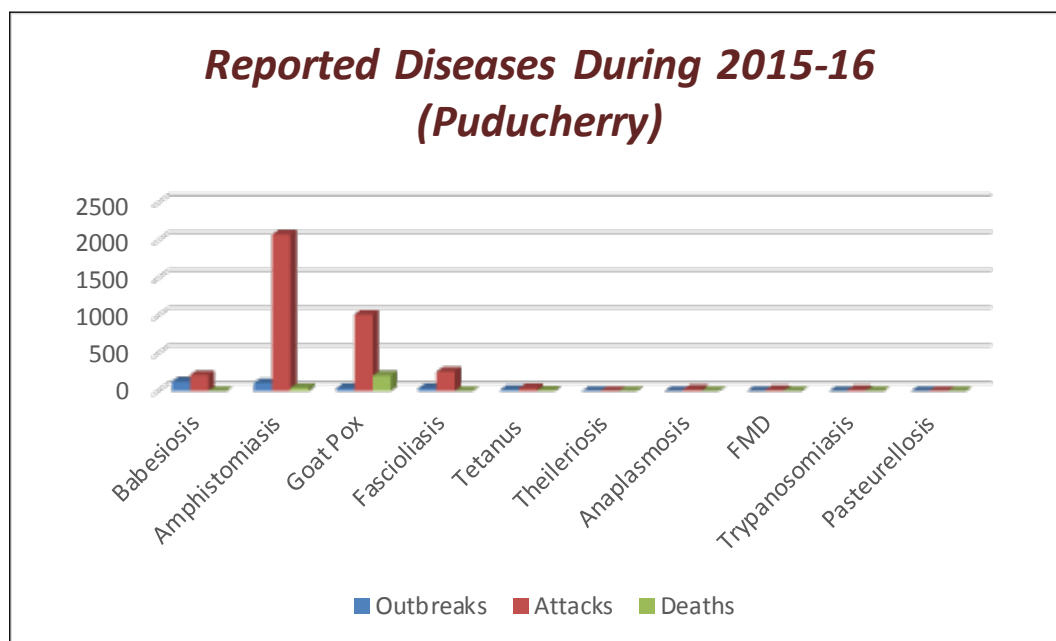
**Fund allotted:** Rs. 6,58,000/-

**Fund Utilized:** Rs. 26,618/-

### Summary/Achievements

- The top diseases reported were parasitic diseases (82.88%), followed by viral (11.11%) and bacterial (6%) diseases.
- There were 19 reports of Tetanus in caprine (17) and bovine (2) with 36 attacks and 6 deaths in Puducherry and Karaikal districts.
- One outbreak of Pasteurellosis was reported in bovine with 3 attacks in Puducherry district in the month of May 2015.
- No outbreak of Anthrax, HS and PPR has been observed
- The major livestock diseases reported from Puducherry in 2015-16 were Sheep and Goat Pox and FMD.
- There was a single outbreak of FMD in bovine in Thengaithittu of Puducherry district with 13 attacks in the month of February 2016. The disease was reported only in unvaccinated animals. Analysis of secular trends for past 5 years showed that maximum number of outbreaks were seen in the cooler and wet months of November and December.
- A total of 36 outbreaks of Sheep and Goat Pox have been recorded throughout the year with 1017 attacks and 205 deaths in Puducherry and Karaikal districts.
- Babesiosis was the highest reported parasitic disease and was reported throughout the year in bovine and small ruminants which is followed by Amphistomiasis, Fascioliasis, Theileriosis, Anaplasmosis and Trypanosomiasis. A gradual increase in babesiosis cases was seen over the last five years in Puducherry.

- A total of 2081 cases of Amphistomiasis, 258 cases of Fascioliasis, 4 cases of Theileriosis, 21 cases of Anaplasmosis and 15 cases of Trypanosomiasis have been reported in Puducherry in 2015-16.



## Punjab (Ludhiana)

**Date of Start:** 1992

Address	Principal Investigator	Co- Principal Investigators
Animal Disease Research Centre, Guru Angad Dev Veterinary and Animal Sciences University Ludhiana-141004, Punjab	<b>Dr. Charan Kamal Singh</b> In-Charge <i>rabiesck@gmail.com,</i> <i>inchargeadrc@gmail.com</i>	<b>Dr. G. Filia</b> Senior Scientist <i>harpalfilia@rediffmail.com</i> <b>Dr. Vinay Mohan</b> Joint Director <i>vmwadhawan@mail.com</i>

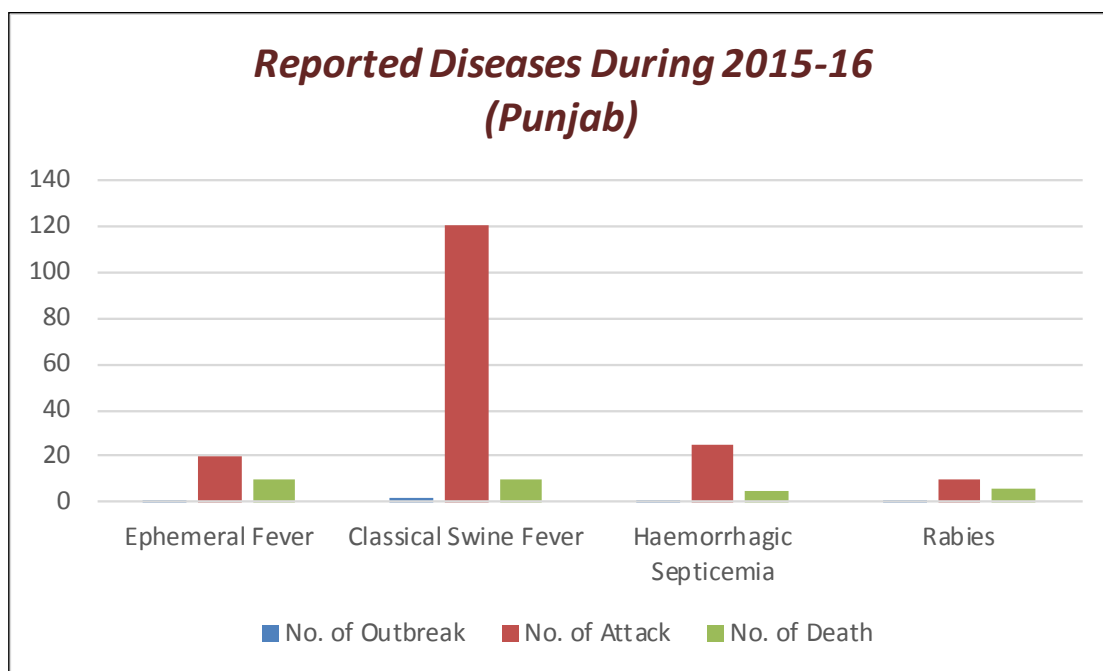
**Fund Allotted:** Rs. 9,53,000/-

**Fund Utilized:** Rs. 9,52,858/-

### Summary/Achievements

- Active surveillance was conducted in 20 villages of different districts of Punjab State from where 477 sera samples were collected and tested. Samples were collected as per the sample frame provided by ICAR-NIVEDI. The 477 sera samples collected were from cattle (130), buffaloes (291), sheeps (23), goats (33). Out of 362 tested samples, 118 (32.59%) serum samples were found positive for antibodies against Infectious Bovine Rhinotracheitis (IBR) by serum based AB\_ELISA.

- Eighteen outbreaks of various diseases *viz.* Haemorrhagic Septicemia (1), Classical Swine Fever (2), Bovine Ephemeral Fever (1), Rabies (1), Respiratory infection of unidentified etiology (1), Aspergillosis (1), Anaplasmosis (1), Babesiosis (2), Theileriosis (1), Strongylosis and Coccidiosis (1), Coccidiosis (1), OPI poisoning (1), Nitrate toxicity (3) and Urea toxicity (1) were investigated during 2015-16.
- Hemorrhagic Septicemia was reported in cattle at Dakha in Ludhiana district. Of 250 animals, 25 were found affected to disease of which 5 animals died. Diagnosis was based on the clinical signs and post mortem lesions.
- Two outbreaks of CSF were recorded from Bathinda and Faridkot districts. Of total 595 pigs at two farms, 120 pigs were affected and 10 died of the disease. Diagnosis was based on the clinical signs, post mortem lesions and antigen detection ELISA.
- An outbreak of Bovine Ephemeral fever was reported from a dairy farm at Batala having a total of 200 cattle. In this outbreak 19 animals were affected and 9 died of the disease. An outbreak of rabies was reported at village Shadipur momian, district Patiala. Out of total of 800 animals in a village ten were affected and six died. The diagnosis was made on the basis of Fluorescent Antibody Test (FAT). One outbreak of Aspergillosis was reported in cows at Noormahal Dera, District Jalandhar. All the animals in the herd (650) were infected. The disease was confirmed by isolation and identification of the fungi.
- An outbreak of Coccidiosis was reported in sheep and goats in Ludhiana district. Out of a total of 138 animals 20 were affected and 11 died.
- A mixed outbreak of Strongylosis and Coccidiosis was reported at Nawanshahr in a sheep farm. Out of a flock of 200 sheep, 50 animals were affected and 30 died of the disease. The diagnosis of both gastrointestinal parasitic outbreaks was based on laboratory examination of the fecal samples.
- An outbreak of theileriosis was reported in Ferozepur district in which 24 cattle out of 300 were infected and 5 died of the disease.
- Two outbreaks of Babesiosis were reported in bovine in district Sangrur and Faridkot. In both the outbreaks, 28 animals out of 465 were infected and 14 died of the disease.
- One outbreak of Anaplasmosis was reported in district Ludhiana. In this outbreak, 4 cattle out of 40 were infected and 2 died of the disease.
- In case of haemoparasitic diseases (Anaplasmosis, Theileriosis and Babesiosis) diagnosis was made on the basis of blood smear examination, post mortem examination and PCR.



## Rajasthan (Jaipur)

**Date of Start:** 1999

Address	Principal Investigator	Co- Principal Investigator
State Disease Diagnostic Centre, Department of Animal Husbandry, Government of Rajasthan, Panch Batti, Jaipur-302001	<b>Dr. Sarita Yadav</b> Joint Director, SDDC, Jaipur <i>ddpathologistraj@gmail.com</i>	<b>Dr. Sandip Agrawal</b> <i>sandip.agrawal67@gmail.com</i>

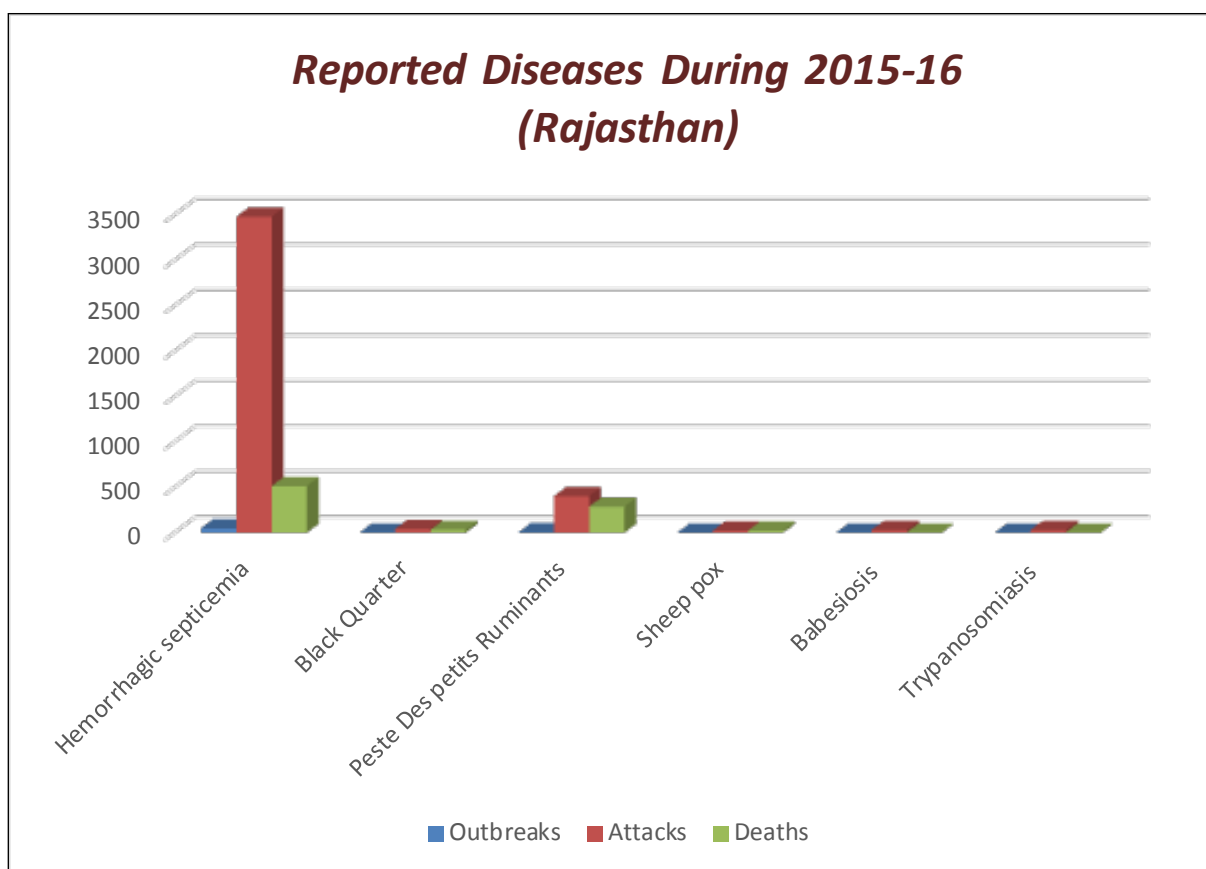
**Fund allotted:** Rs. 9,53,000/-

**Fund Utilized:** Rs. 5,72,193/-

### Summary/Achievements

- In year 2015-16, there were 65 outbreaks of 6 diseases including HS, BQ, PPR, Sheep and Goat Pox, Babesiosis and Trypanosomiasis.
- Fifty outbreaks of HS was reported from various district of Rajasthan with 3479 attacks and 514 death reports. This is against 67 outbreaks reported in last year with 561 death. Jaipur district was most affected with 20 outbreaks of which 1351 animals were affected with 159 animals died respectively. Except in the month of July the disease occurred in each and every month.

- The Black Quarter has been reported from two district of Rajasthan viz; Hanumangarh and Jhunjhunu. In Hanumangarh out of three outbreaks reported 15 animals were affected and casualty reported was 10. In Jhunjhunu in one outbreak out of 28 animals affected 22 animals were died
- Five outbreaks of PPR were reported in Rajasthan. In the Jaipur district two outbreaks were reported and Out of 107 animals affected 38 died.
- In the Jodhpur district Sheep and Goat Pox outbreak was reported and out of 23 animals affected all reported died. This disease occurred in these animals during the month of March.
- Out of 2168 blood samples, 62 samples were found positive for blood parasites. Babesia & Anaplasma were the major concern in livestock for causing blood parasitism followed by Trypanosome spp. and Theileria spp.
- A total of 3289 Samples were examined for presence of any gastrointestinal parasite. Out of these samples, 08 samples were found positive for presence of parasitic infestation. In this geographical area, the flukes were found to be the cause for most of the gastrointestinal disturbances.



## Sikkim (Gangtok)

**Date of Start:** 2015

Address	Principal Investigator	Co- Principal Investigator
Animal Husbandry & Veterinary Department, Government of Sikkim, Tadong-737102	<b>Dr. K.C Bhutia</b> Addl. Director (DI) <i>kesvet@gmail.com</i>	<b>Dr. Karuna Chettri</b> Joint Ditector (DI) <i>karuvet@gmail.com</i>

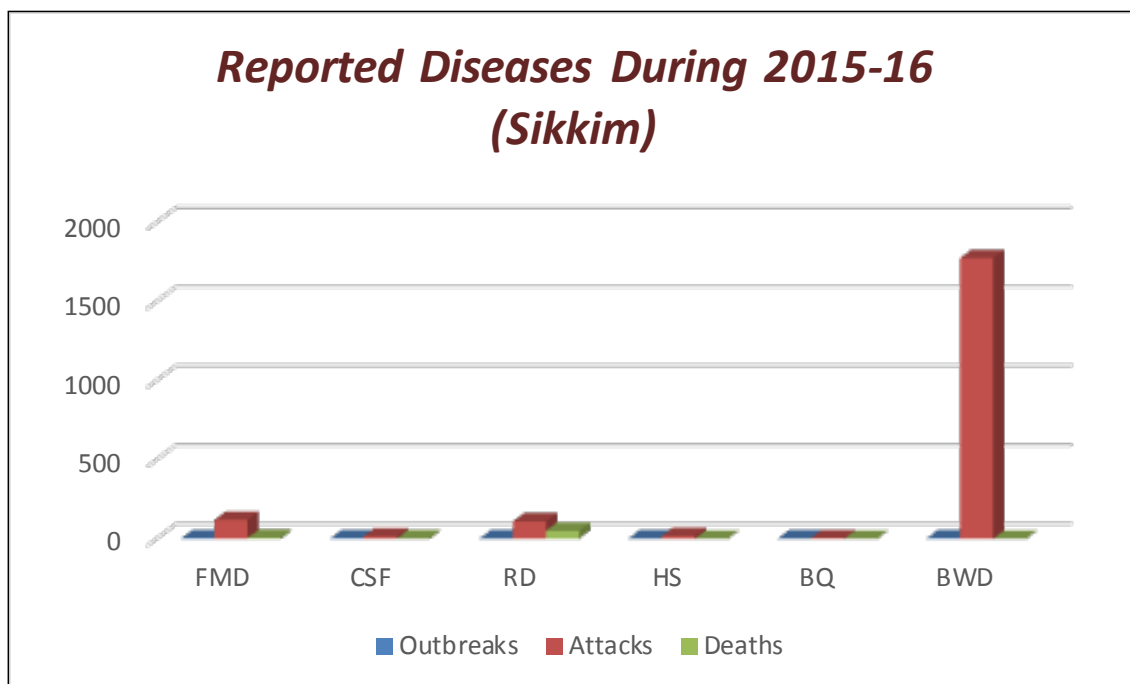
**Fund Allotted:** Rs. 7,83,000/-

**Fund Utilized:** Rs. 2,71,038/-

### Summary/Achievements

- In 2015-16, viral diseases dominated over the bacterial diseases in terms of incidence and mortality.
- Hemorrhagic Septicaemia (HS) was found to be the top reported bacterial disease and the disease has been reported from West, East and South District. A total of 10 incidence was recorded with no report of mortality. The highest number of incidence is from Soreng (5), West district, followed by Anden (3), West District and one incidence each in Central Pendam and Dalapchand, East District. The highest incidence occurred in autumn season (6) followed by spring season which may be due to high rainfall.
- Bacillary White Diarrhea (BWD) was recorded as one of the important disease of poultry causing high morbidity in young chicks. Highest nos. of incidence was reported from west district (backyard and organized farms). A total of 1774 no. of incidence was recorded. Reduction in the incidence of BWD over the period of five years is observed may be due to increased awareness among poultry farmers on strict bio-security measures and procurement of chicks from good breeders.
- West district and East district reported the incidence of Ranikhet disease. The areas that reported the disease were Soreng and Daramdin of West District and Rorathang, East district. Around 50 pigeons and a few backyard poultry died of Ranikhet disease, as confirmed by ERDDL, Kolkata.
- FMD was the top reported disease for the year under report with 119 attacks and 5 death, was mostly reported from East district, followed by South and West district. FMD was mostly encountered in winter and late winter season, affecting cattle, goat and pig.
- CSF is the next top reported disease in the year. Classical Swine Fever is endemic amongst swine population which is primarily due to unavailability of vaccines but the incidence of CSF has decreased over the past two years.

- Thirty five numbers of incidence of Fowl Pox was recorded from Chumbung, West district. The incidence was reported in the month of May.
- Endoparasitic infestations are reported throughout the year with marginal decrease in winter. High incidence of Fascioliosis (78) has been reported from west district.
- Out of 1920 nos of fecal examination done, the result showed positive for nematode (577), cestode (203), trematode (78), protozoa/coccidian (2).



### Telangana (Hyderabad)

**Date of Start:** 2015

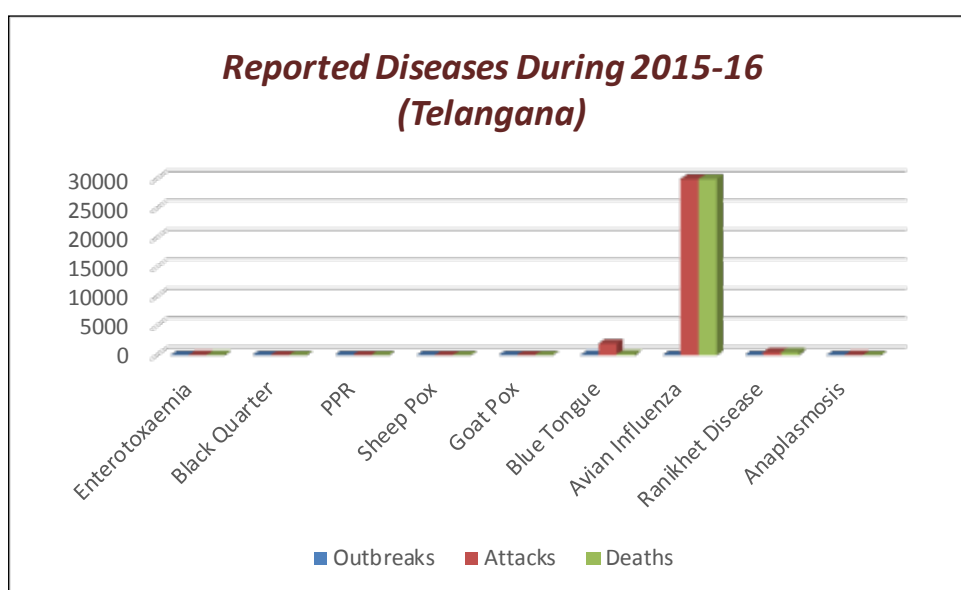
Address	Principal Investigator	Co- Principal Investigator
AICRP ADMAS Unit, Hyderabad, Telangana State Veterinary Biologicals & Research Institute, Shanthinagar, Hyderabad – 500 028	<b>Dr. A. V. Krishna Mohan</b> Deputy Director (AH) <i>ayinam61@yahoo.co.in</i>	<b>Dr. M.A. Muqeeth</b> Assistant Director (AH) <i>mamuqeeth@yahoo.com</i>

**Fund Allotted:** Rs. 8,53,000/-

**Fund Utilized:** Rs. 8,29,171/-

## Summary/Achievements

- During 2015-16, 63 outbreaks were investigated including bacterial (7), viral (45) and protozoan (1) disease.
- Out of 17 Bacterial disease outbreaks, 15 were of Enterotoxaemia with 45 attacks with 100% mortality. Two (2) outbreaks are of Black Quarter with 17 attacks and 4 deaths.
- Anaplasmosis has been reported in Warangal district with 48 attacks and 3 death.
- Besides regularly reporting the diseases, surveillance is also carried out on Brucellosis, Tuberculosis, Johne's disease, IBR, Equine Influenza, BSE and Avian Influenza in the state.
- Viral disease top the most reported when compared to bacterial disease.
- Bluetongue have the maximum outbreak of 35 with 1966 attack and 155 death.
- During the year under report one outbreak each of Avian Influenza and Raniket Disease has been reported in Rangareddy district in April and May 2015. Mortality rate of poultry was high due to Avian Influenza *i.e.* 30000 attacks with 100% mortality.
- Analysis of secular trends for more than past 5 years indicates that there is an decrease in the outbreaks of ET, Sheep and Goat Pox, whereas BQ, PPR and BT has showed increased outbreak in which BT has showed the maximum increase from last year from 0 to 35.
- Out of 4782 faecal samples collected and screened at the institute, 366 samples were found positive for different parasitic infestations (7.65%). viz Amphistomes (16), Ascarids (52), Strongyloides (154), Trichuris (30), Coccidiosis and *B. coli* (114).
- An economic loss of more than Rs. 42,36,000 has been estimated due to various diseases.





## Tripura (Agartala)

**Date of Start:** 2015

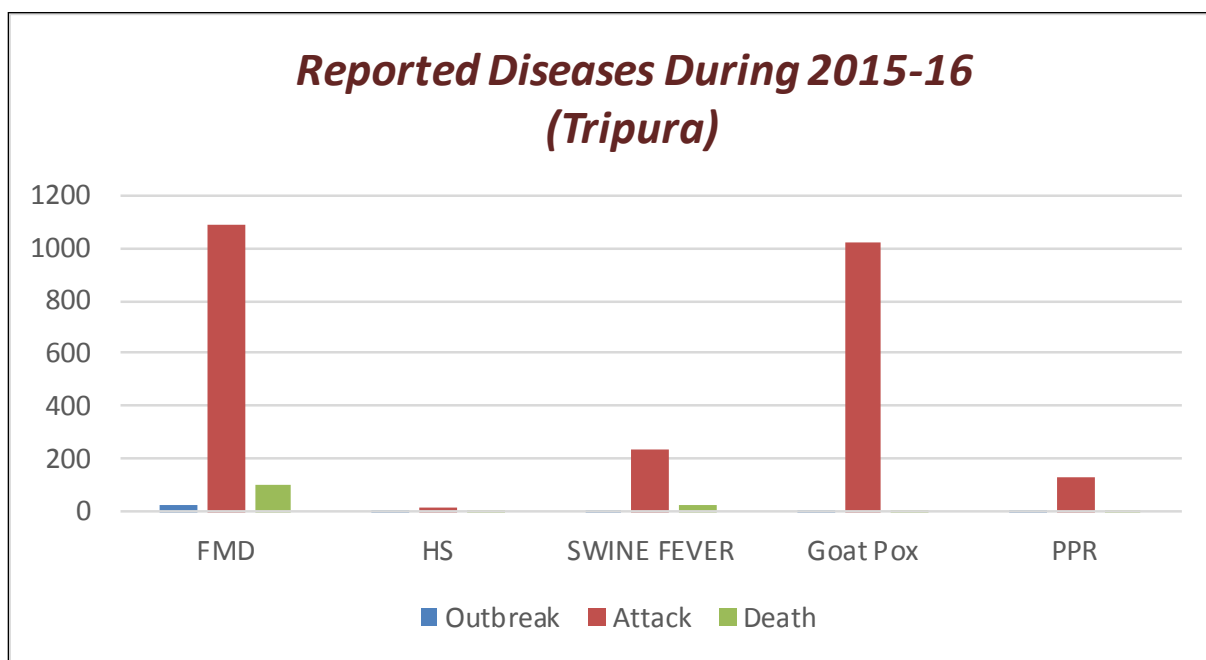
Address	Principal Investigator	Co- Principal Investigator
State Disease Investigation Laboratory, P.O. Abhoynagar, Agartala, Tripura West Pin-799005	<b>Dr. Arup Kumar De</b> <i>arupde1962@gmail.com</i>	<b>Dr. Jyotirmoy Roy</b> <i>roybulti@yahoo.co.in</i>

**Fund Allotted:** Rs. 7,83,000/-

**Fund Utilized:** Rs. 21,409/-

### Summary/Achievements

- Among the animal diseases most prevalent infectious disease was found to be FMD. During 2015-16, 21 outbreaks occurred where 1086 animals were affected in which 102 calves died.
- Most prevalent disease in Goat was Sheep and Goat Pox during 2015-16. The disease was detected first time during 2014-15 in the State.
- In poultry, Ranikhet disease considered as most prevalent disease. Lot of poultry mortality has been encountered in every year though dept. had been carried out vaccination. Coccidiosis is also considered as important poultry ailment in commercial broiler farm.
- During the month of January 2016, State has experienced one outbreak of Bird Flu in State Poultry Farm, Gandhigram under Bamutia block, West district and successfully contained by the Dept. of ARD.
- Incidence of Coccidiosis is also increased due to tropical climate as well as increased broiler farming in the state.
- Among the parasitic infestation, Amphistomiasis is most prevalent followed by Strongylosis.



### Uttar Pradesh (Bareilly)

**Date of Start:** 2015

Address	Principal Investigator	Co- Principal Investigator
Centre for Animal Disease Research and Diagnosis (CADRAD), ICAR-Indian Veterinary Research Institute, Izatnagar – 243122, Bareilly, Uttar Pradesh	<b>Dr. Sukdeb Nandi</b> <i>sukdebndani@yahoo.in</i>	<b>Dr. Vinodh Kumar</b> <i>vinodhkumar_rajendran@yahoo.co.in,</i> <i>vinodhkumar.rajendran@gmail.com</i>

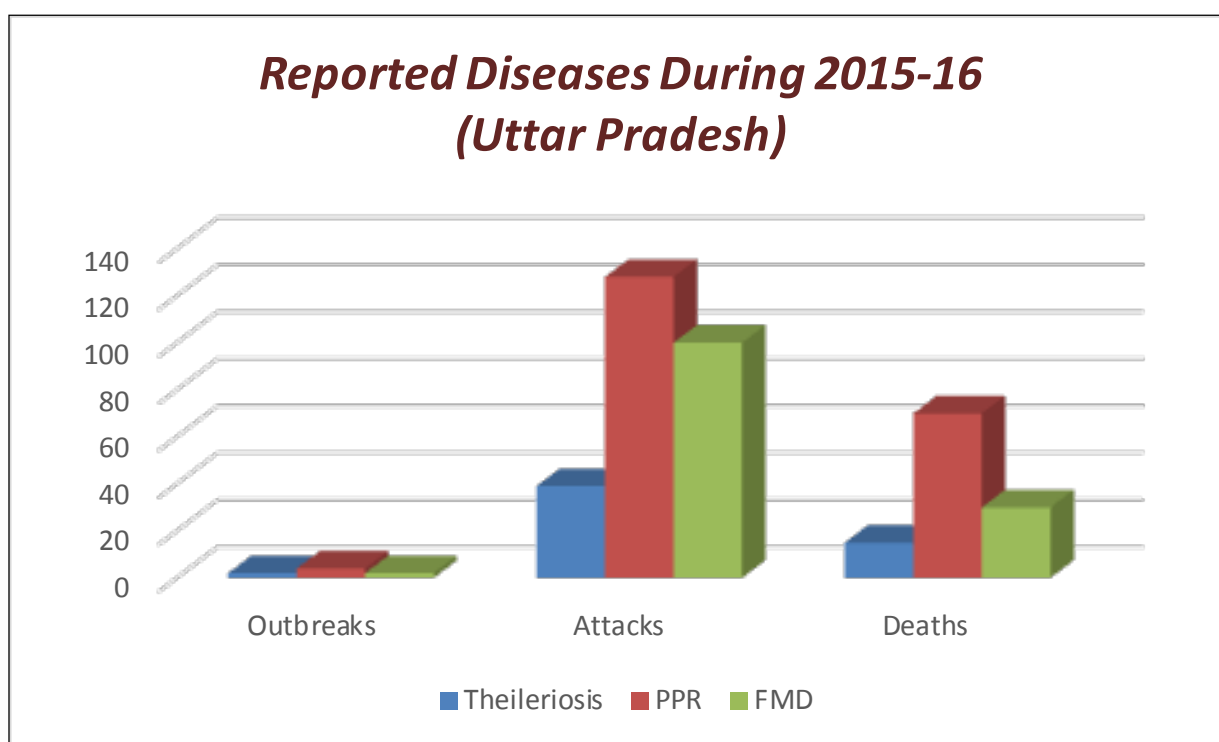
**Fund Allotted:** Rs. 10,33,000/-

**Fund Utilized:** Rs. 5,02,798/-

#### Summary/Achievements

- In this year PPR in goats and FMD in calves were the important viral diseases and Theileriosis in cattle was the important blood protozoan disease of livestock that were recorded.
- During this year PPR was the top reported viral disease in Uttar Pradesh with 4 outbreaks, 128 attacks and 70 deaths. The attack rate and case fatality rate were mostly reported in unvaccinated flocks.
- Outbreak of FMD is also reported and the 30 calves died. The FMD deaths were reported mainly in calves.

- During the period under report serum samples were collected from Jalalabad, Farukabad, Shahbad, Hardoi, Dataganj, Kasganj and Aliganj as per the sampling frame.
- The PPR outbreak in goats were reported in *Bilsuri* (*Sikandrabad tesil*, Bulandshahr district), Shyamganj (Bareilly) and IVRI (Bareilly).
- FMD outbreaks were reported in Nawal Surajpur, Meerut and the death were mainly found in young animals.
- A total of 12 cattle, 35 buffaloes and 7 goats serum samples were screened for Brucellosis and none found positive. These samples were tested for BHV-1 and BVDV antibodies and 4 cattle were found positive for antibodies to BHV-1. None of the cattle and buffalo serum samples were found positive for antibodies to BHV-1 and BVDV.



## Uttarakhand (Dehradun)

**Date of Start:** 2015

Address	Principal Investigator	Co- Principal Investigators
Animal Husbandry & Veterinary Department, Government of Uttarkhand, kedarpuram, Dehradun-248115	<b>Dr. Prem Shanker Yadav</b> Joint Director (Disease Control) <i>drpshanker@gmail.com,</i> <i>drpshanker@rediffmail.com</i>	<b>Dr. Prasoon Dubey</b> Veterinary Officer, Grade I <i>drprasoondubey@rediffmail.com</i>  <b>Dr. Manju Aswal</b> Veterinary Officer, Grade II <i>manjuvet29111@gmail.com</i>

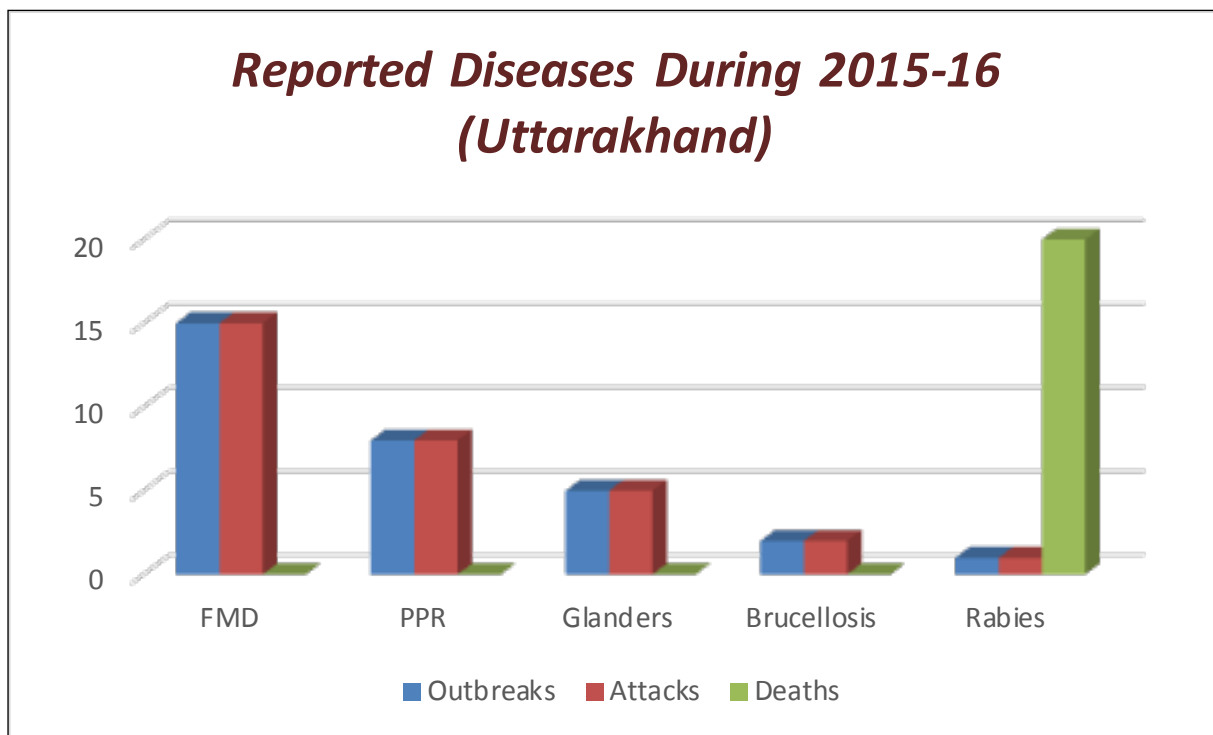
**Fund Allotted:** Rs. 10,33,000/-

**Fund Utilized:** Rs. 7,86,203/-

### Summary/Achievements

- A total number of 42 outbreaks were reported in 2015-16.
- Two outbreaks of brucellosis recorded in Dehradun and Uttarkashi districts where 41 samples were screened out of which 13 samples reported positive.
- Four outbreaks with Three death reports in equines due to Glanders were reported each in Dehradun, Haridwar, Rudraprayag and US Nagar respectively. A total number of 41 samples were sent to NRC Equine, Hisar.
- One case of Rabies reported from Tehri in canine and bovine, one brain sample collected and sent to IVRI Izatnagar and confirmed rabies. Total 20 animals died (8 canine, 12 bovine). To prevent future outbreak, massive ARV vaccination done in the affected area for canine and bovine.
- Total 17 outbreaks of FMD reported from various districts, 260 samples sent to PD FMD Mukteswar and diagnosed the disease. Cattle was the most affected species from FMD and indigenous cattle was found less severely affected than crossbred and exotic cattle.
- Eight PPR outbreaks reported, 123 samples sent to virology division, IVRI Mukteswar and reported positive for PPR.
- Total 10 outbreaks of IBR reported the serum samples diagnosed positive from ICAR-NIVEDI Bengaluru.
- Blood parasitic infestations like Anaplasmosis, Babesiosis, Theileriosis and Trypanosomiasis are reported throughout the year and almost throughout the state as sporadic cases. Out of total blood samples screened, incidence of Anaplasmosis 6.04%, Babesiosis 15.27%, Theileriosis 9.4% and Trypanosomiasis 3.48% reported.

- Among the intestinal parasites incidence of Trematodes 5%, Cestodes 10% and Nematodes 41.2% recorded.
- 523 serum samples collected from 60 villages of Uttarakhand sent to ICAR-NIVEDI Bengaluru for screening of various diseases as part of National Livestock Serum Repository.



### West Bengal (Kolkata)

**Date of Start:** 2005

Address	Principal Investigator	Co- Principal Investigator
Indian Veterinary Research Institute, Eastern Regional Station, No-37 Belgauchia Road, Kolkata-700 037	<b>Dr. Subhashish Bandhopadhyay</b> <i>subuicar@rediffmail.com</i>	<b>Dr. Premanshu Dandapat</b> <i>pdandapat@yahoo.co.in</i>

**Fund Allotted:** Rs. 9,53,000/-

**Fund Utilized:** Rs. 6,78,114/-

## Summary/Achievements

- The temporal distribution of HS outbreak indicates that the highest numbers of outbreaks are reported during the months of May to June and September to October as well as January. HS has not been reported in few districts like Darjeeling, Uttar Dinajpur, Purba Medinipur, Nadia, Kolkata, North 24 Parganas and South 24 Parganas for the past 5 years, although it is quite prevalent in other districts of West Bengal.
- BQ outbreaks are being reported in West Bengal from all the districts except Kolkata and Darjeeling.
- Analysis of secular trends for last 5 years (2010-15) indicated that Anthrax is endemic in Nadia, Murshidabad, Hooghly, Burdwan, Bankura and Cooch Bihar with highest number of outbreaks in Murshidabad district.
- Bovine respiratory disease in mithun and tuberculosis outbreaks in organized farms in Nadia and South 24 Parganas districts in West Bengal were investigated during 2015-16.
- FMD outbreaks are prevalent throughout the year in West Bengal. Analysis of secular trends for the last 5 years, showed that higher prevalence of FMD was recorded in western districts of West Bengal (Birbhum, Bankura and Purulia) and more outbreaks were reported during winter (October to January).
- Rabies was highly prevalent in few districts having forest area like Darjeeling, Jalpaiguri and Birbhum.
- In West Bengal, 26% cattle and 22% sheep were tested and found sero-positive for IBR and Bluetongue, respectively, while all sera samples turned negative for CSFV and brucellosis.
- PPR outbreak was found to be more frequent in goat in West Bengal, while Black Quarter was reported in large ruminants.
- A total of 228 serum samples from cattle, buffalo, sheep, goat and pig were collected from nine (9) villages in 2 districts of West Bengal for sero-surveillance of IBR, brucellosis, blue tongue and CSFV.
- Strategic anthelmintic treatment along with mineral mixture supplementation in goat at farmers' field was conducted in three villages of Sunderban delta of West Bengal to find out its economic significance.

## Financial Statement of AICRP on ADMAS Centres 2015-16

Name of the unit	Allotment 2015-16			Releases (1)			Releases (2)			Total Release			
	NRC	TA	Contg.	TA	Contg.	TA	Contg.	NRC	TA	Contg.	NRC	TA	Contg.
	Andhra pradesh	53000	100000	800000	50000	400000	48046	399600	53000	98046	799600	53000	98046
Assam	53000	100000	800000	50000	400000	39724	400408	53000	89724	800408	53000	89724	800408
Gujarat	53000	100000	800000	50000	364000	48328	400283	53000	98328	764283	53000	98328	764283
Jammu & Kashmir	53000	100000	800000	41451	400000			53000	41451	400000	53000	41451	400000
Jharkhand	53000	100000	800000	50000	400000			53000	50000	400000	53000	50000	400000
Karnataka	53000	100000	800000		400000	33350	395269	53000	33350	795269	53000	33350	795269
Kerala	53000	100000	800000	50000	400000	50000	400000	53000	100000	800000	53000	100000	800000
Madhya pradesh	53000	100000	800000	50000	400000	50000	400000	53000	100000	800000	53000	100000	800000
Maharastra	53000	100000	800000		400000	100000	349000	53000	100000	749000	53000	100000	749000
Manipur	53000	100000	800000	50000	300000	50000	499964	53000	100000	799964	53000	100000	799964
Meghalaya	53000	100000	800000	50000	397000	50000	400500	53000	100000	797500	53000	100000	797500
Orissa	53000	100000	800000	50000	400000	34247	400000	53000	84247	800000	53000	84247	800000
Punjab	53000	100000	800000		400000	61366	399801	53000	61366	799801	53000	61366	799801
Rajasthan	53000	100000	800000	50000	400000	49503	400000	53000	99503	800000	53000	99503	800000
West Bengal									0	0	0	0	0
West Bengal - IVRI	53000	100000	800000	50000	300000	40864	460875	53000	90864	760875	53000	90864	760875
<b>Total</b>	795000	1500000	12000000	591451	5761000	655428	5305700	795000	1246879	11066700	795000	1246879	11066700

Name of the unit	Allotment 2015-16			Releases (1)		Releases (2)			Total Release		
	NRC	TA	Contg.	TA	Contg.	TA	Contg.	NRC	TA	Contg.	NRC
NIVEDI, Bangalore		100000	850000						0	0	0
Chennai, Tamilnadu		100000	750000						0	0	0
Hisar, Haryana	183000	100000	750000	100000	250000		500000	183000	100000	750000	183000
Shimla, Himachal Pradesh		100000	750000	100000	250000			183000	100000	250000	183000
Patna, Bihar	183000	100000	750000	100000	250000		500000	183000	100000	750000	183000
Raipur, Chhattisgarh	183000	100000	750000	100000	250000		500000	183000	100000	750000	183000
IVRI, Lucknow, Uttar Pradesh		100000	750000	100000	250000		500000	183000	100000	750000	183000
Itanagar, Anunachal Pradesh	183000	100000	500000	100000	250000		250000	183000	100000	500000	183000
Gangtok, Sikkim		100000	500000	100000	250000		250000	183000	100000	500000	183000
Agartala, Tripura	183000	100000	500000	100000	250000		250000	183000	100000	500000	183000
Dehradun, Uttarakhand	183000	100000	750000	100000	250000		500000	183000	100000	750000	183000
Nagaland	183000	100000	500000	100000	250000		250000	183000	100000	500000	183000
Aizwal, Mizoram	183000	100000	500000			100000	500000	183000	100000	500000	183000
Hyderabad, Telengana		100000	700000	100000	250000		450000	53000	100000	700000	53000
Portblair, A & N Islands	183000	100000	500000	100000	250000		250000	183000	100000	500000	183000
Goa		75000	400000						0	0	0
Puducherry		75000	400000	75000	250000		150000	183000	75000	400000	183000
Lakshdweep, Kavarathi		100000	400000						0	0	0
Total for New Centers	1647000	1750000	11000000	1275000	3250000	100000	4850000	2432000	1375000	8100000	2432000
<b>Grand Total</b>	<b>2442000</b>	<b>3250000</b>	<b>23000000</b>	<b>1866451</b>	<b>9011000</b>	<b>755428</b>	<b>10155700</b>	<b>3227000</b>	<b>2621879</b>	<b>19166700</b>	<b>3227000</b>



23<sup>rd</sup> Annual Review Meeting of AICRP on ADMAS,  
ICAR - NIVEDI held at Thiruvananthapuram, Kerala  
from 8-9 October 2015





## AICRP on ADMAS Centres, ICAR-NIVEDI, Bengaluru



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

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Published by

**Dr. B.R. Shome**

Director (Acting)

**ICAR-National Institute of Veterinary Epidemiology and  
Disease Informatics (NIVEDI),**

Post Box No.6450, Ramagondanahalli, Yelahanka, Bengaluru-560064, Karnataka, India.

Ph: +91-80-23093110, 23093111, Fax: +91-80-23093222

Website: [www.nivedi.res.in](http://www.nivedi.res.in), Email: [director.nivedi@icar.gov.in](mailto:director.nivedi@icar.gov.in)