All India Co-ordinated Research Project on Animal Disease Monitoring and Surveillance

(AICRP on ADMAS)

ANNUAL REPORT

2017-18

ICAR-NATIONAL INSTITUTE OF VETERINARY EPIDEMIOLOGY AND DISEASE INFORMATICS

YELAHANKA, BENGALURU-560064

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Cover Page : Livestock Disease Forewarning Mobile App by Hon'ble Union Minister of Agriculture Shri Radha Mohan Singh Ji, in presence of Hon'ble Minister of State for Agriculture Shri Gajendra Singh Shekhawat Ji.

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

It is the determined, persistent and untiring endeavour 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, Dr. S.S. Patil, Principal Scientist and Dr. K.P. Suresh, Principal Scientist, Co-Nodal Officers, AICRP on ADMAS for their tireless support to carry out the project.

The help and support rendered by all the Scientists of the institute, Technical Officers, Administrative and Accounts sections of ICAR-NIVEDI is also acknowledged.

Dr. B. R. Shome
Director (Acting)

PREFACE

The AICRP on Animal Disease Monitoring and Surveillance (AICRP-ADMAS) which made humble beginning in the VIIth five-year plan (1987 to be precise) with four Regional Research Units (RRUs)/collaborating units has now grown into a bigger entity with 31 collaborative centers located in different states of the country.

Currently, all AICRP collaborating units are extensively working on animal disease diagnosis, outbreak investigation, disease reporting, pathogen characterization and mapping etc., with major focus on bacterial (Brucellosis, Leptospirosis, Mastitis, Haemorragic Septicaemia, Anthrax, Black Quarter & Enterotoxaemia,), viral (Infectious Bovine Rhinotracheitis, Bluetongue, Classical Swine Fever, Peste des Petits Ruminants and Sheep and Goat Pox, Rabies) and parasitic (Trypanosomosis, Theileriosis, Babesiosis, Fascioliosis and Amphisomiosis) diseases of economic importance.

In addition, AICRP on ADMAS envisages to improve livestock disease database. It is heartening to put on record that under AICRP on ADMAS, a livestock disease database has been developed, which in combination with data on risk factors is being used for forewarning two months in advance the occurrence of 13 important Livestock Diseases in the country. So produced forewarning information is disseminated in the form of monthly bulletins, to various central and state Animal Husbandry Departments to initiate suitable preventive measures. Now, to further expand the reach of this bulletin ICAR-NIVEDI has developed Livestock Disease Forewarning Mobile Application (app) "LDF-Mobile App". The forewarning methodology adapted in the "mobile app" remains the same as monthly bulletin. In addition to forewarning, the LDF-Mobile App also provides the details of clinical samples to be collected in case of outbreaks of the listed diseases for laboratory confirmation. Immediate preventive measures to be taken up in case of positive prediction/disease confirmation. This "LDF-Mobile App"had been released by Union Minister of Agriculture, Shri Radha Mohan Singh Ji last year and I hope users will find application very useful in their quest to control livestock diseases.

Finally, I once again wholeheartedly congratulate all PIs and Co-PIs and solicit continued support for the programme.

B. R. Shome
Director (Acting)

Objectives of AICRP on ADMAS

- To perform surveillance and monitoring of specified diseases of the country with reference to TAD for Border States and livestock migratory routes for the landlocked states
- To map the livestock diseases of various states of the country with reference to agro-climatic factors, livestock population and management practices
- Sero-epidemiological studies on identified livestock diseases based on the double stage stratified random survey framework issued by the central unit
- To participate in the disease informatics programmes of the Institute by carryout the active as well as passive surveillance of the identified diseases

Mandates

- Sero-monitoring of animal diseases based on sample plan
- Investigation of endemic, emerging and re-emerging animal disease outbreaks using innovative technologies
- Strengthening of National Livestock Serum Repository
- Effective updating of NADRES with active disease data and climatic and non-climatic risk-factors
- Utilization of forecasting models through NADRES for forecasting and forewarning of animal diseases
- Analysis on economic losses due to animal diseases and the control measures adopted for their management, and Surveillance of diseases/pathogens of companion, laboratory and wild animals

Proceedings of 25th Annual Review Meet of AICRP on ADMAS, held at Pune, Maharashtra

The 25thAnnual Review Meet of AICRP on Animal Disease Monitoring and Surveillance of ICAR-NIVEDI was organized at Pune on 26 & 27th October 2017. The meeting, was jointly inaugurated by Dr. D. M. Chavan, Additional Commissioner of AH, Govt of Maharshtra, Dr. Ashok Kumar, Asst Director General (AH), ICAR, New Delhi and by Project Coordinator, ADMAS. During the inaugural speech, Dr. Parimal Roy, Project Coordinator, AICRP on ADMAS and Director, NIVEDI spoke about the contribution of the livestock sector and how each animal species from India fared in its contribution globally. He also highlighted how disease forewarning is helping in bringing down the disease incidences and need to upscale the disease reporting to village/block level from current district level for better disease predictions. Dr. Ashok Kumar, in his presidential speech informed the house that having proper economic projections are important to convince the policy makers to attract more funding, and praised all stake holders of livestock sectors for achieving value outputs more than that from the food grains.

Dr. D. M. Chavan, Additional Commissioner of AH, Govt of Maharshtra, who was Chief Guest of the function spoke about the importance of surveillance and requirement of international quality diagnostic tests. He also spoke about the need for surveillance of exotic diseases and inter laboratory proficiency testing.

Earlier, Dr. S. B. Tatawarthy, Joint Commisioner, DIS Pune welcomed the guests and informed the house about contributions of Maharashtra state in livestock disease control. He also spoke about the need of standard diagnostics, their constant supply and homogeneity across the testing laboratories.

The two days long programme to discuss technical issues related animal disease monitoring and surveillance and the progress made in the previous one year began with action taken report by Dr. Parimal Roy,. Dr. Divakar Hemadri, Nodal Officer, AICRP on ADMAS presented report of the central coordinating unit. The technical sessions included presentations by all the 31 AICRP centers and thread bare discussions on the progress made and activities to be undertaken in the upcoming year. Principal investigators of Ahmedabad, Cuttack, Dehradun, Gangtok, Nirjuli, Raipur and Ranchi centers could not attend the meeting, and Dr. Divakar Hemadri, Nodal Officer of AICRP presented the progress report of

these centres. Absenteeism by the centres was viewed seriously by the council and every PI was asked not to repeat the same.

After the thread bare discussions on the progress of each centre, the following recommendations were made:

General recommendations

Centres are required to furnish the vaccine/vaccination data in the prescribed format provided to each centre.

(Action: all AICRP centres)

The PIs are requested to adhere strictly to sample plan and collect same and send to ICAR-NIVEDI before 31st December and NIVEDI to provide results on time

(Action: NIVEDI & all AICRP centres)

Centres are required to provide the details of PFMS unique ID and bank account details by 30 November, 2017.

(Action: all AICRP centres)

Annual Reports of respective centres to be submitted by 30th April.

(Action: all AICRP centres)

Information about the targeted diseases by ICAR-NIVEDI must be presented in detail and provision of any additional information may be provided if felt necessary/important.

(Action: NIVEDI & all AICRP centres)

All centres need to investigate (wherever applicable) the disease outbreaks in both vaccinated/unvaccinated herds/population using the tools/formats provided by ICAR-NIVEDI

(Action: NIVEDI & all AICRP centres)

Village-wise outbreaks for each state for the past five years need to be sent to NIVEDI by 30th March 2017.

(Action: NIVEDI & all AICRP centres)

The resource persons at the host places needs to invited for annual review meet.

(Action: NIVEDI)

All centres need to focus on efficient utilization of budget.

(Action: NIVEDI & all AICRP centres)

Centre wise recommendations

Andaman &Nicobar Islands (Portblair) Intensive studies may be taken up determine, why there is high sero-prevalence of bluetongue and trypanosomiasis.

Andhra Pradesh

As a special task, further epidemiological investigation of Chlamydophila abortus infection in Ovines and Caprines in Andhra Pradesh may be taken up in continuation of the earlier work. Bluetongue vaccine epidemiology may be taken up.

Arunachal Pradesh
It is viewed seriously of not attending the review meet and advised not to repeat the same.
Strict adherence to sending of samples as per sampling plan.

Assam
Linkages with State AH department needs to be strengthened for data and sample collection
Village level livestock disease data needs to be sent.

Bihar
Linkages with State AH department, ICAR Research Complex for Eastern Region, Patna needs to be established and strengthened for data and sample collection.
Migration/movement/transportation of pigs from- and to- Bihar with special reference to North Eastern region needs to be studied and documented.
Village level livestock disease data needs to be sent.

Chhattisgarh
It is viewed seriously of not attending the review meet and advised not to repeat the same (Reminder 2).
Details regarding vaccination under PPR control programme need to be provided.

Goa
Linkage with State AH department needs to be established.

Village level livestock disease data needs to be sent.

Gujarat
It is viewed seriously of not attending the review meet and advised not to repeat the same
Migratory pattern of cattle and mules/horses need to be established and documented.

Haryana
Any first reports of the livestock diseases in the country to be confirmed by ICAR-NIHSAD and ICAR-NIVEDI before declaring/publishing in any form.
More number of pig samples to be screened for CSF in order to have preparedness since Haryana has smaller pig population.
Likewise, detailed investigation is to be done why there are more number of Trypanosomiosis cases have been reported in bovines.

Jammu and Kashmir
A thorough epidemiology of foot rot in sheep and goats needs to be carried out.

Jharkhand
Detailed epidemiological study on anthrax outbreaks and awareness campaigns should be conducted more frequently among the public.
Epidemiology of CSF needs to be carried out.

Karnataka
The center needs to recommend state govt about preventive vaccinations.
Detailed epidemiology of Anthrax outbreaks along the borders sharing with Telangana and Andhra Pradesh need to be carried out in relation to the vaccine epidemiology.

Detailed epidemiological investigation on CSF outbreaks to be carried out in relation to the vaccine epidemiology. Bluetongue suspected samples needs to be sent to ICAR-NIVEDI.

Kerala
Detailed investigation of PRRS needs to be investigated.

Madhya Pradesh
Detailed study on HS outbreaks in relation to vaccine epidemiology need to be conducted.

Maharashtra
Detailed epidemiological investigation of PPR outbreaks need to be carried out.

Manipur
Epidemiological studies on the animal movement/migration have to be undertaken and documented.
Epidemiology on CSF and PRRS to be studied in detail.

Meghalaya
Demand, supply and source of vaccines for swine diseases in NE region need to be compiled and documented.
Identification of risk factors for PRRS in NE region and sero-survey of PPR in the state may be taken up.

Mizoram
Detailed epidemiological investigation of PRRS need to be carried out and regular pig serum samples to be sent to ICAR-NIVEDI.
Swine erysipelas samples may be sent to Barapani/IVRI for confirmation.

Nagaland
Detailed epidemiological investigation of CSF need to be carried out.
Village level livestock disease data needs to be sent.

Odisha
Detailed vaccine epidemiology on Anthrax need to be carried out.
It is viewed seriously of not attending the review meet and advised not to repeat the same.

Puducherry
Detailed epidemiological investigations why there is high prevalence of trypanosomiasis needs to be taken up.

Punjab
Avoid presenting Toxicity data.
Liaison with State AH dept to be strengthened.

Rajasthan
Vaccine epidemiological study of HS need to be carried out in details.
Advice the state on the border area vaccination strategy to be followed along with the procedure.

Sikkim
It is viewed seriously of not attending the review meet and advised not to repeat the same
Pig samples need to be sent to ICAR-NIVEDI for confirmation of the disease.

Tamilnadu
Serum samples as per sampling plan needs to be sent.

Telangana
Sheep and Goat clinical samples need to be sent to ICAR-NIVEDI

Tripura
Illegal trafficking of vaccine needs to be studied.

Uttar Pradesh
Liaison with State AH dept to be strengthened.
Village level livestock disease data needs to be sent.

Uttarakhand
Submit semen samples to ICAR-NIVEDI for IBR screening.
Adhere to disease outbreak format for sending data.
It is viewed seriously of not attending the review meet and advised not to repeat the same.

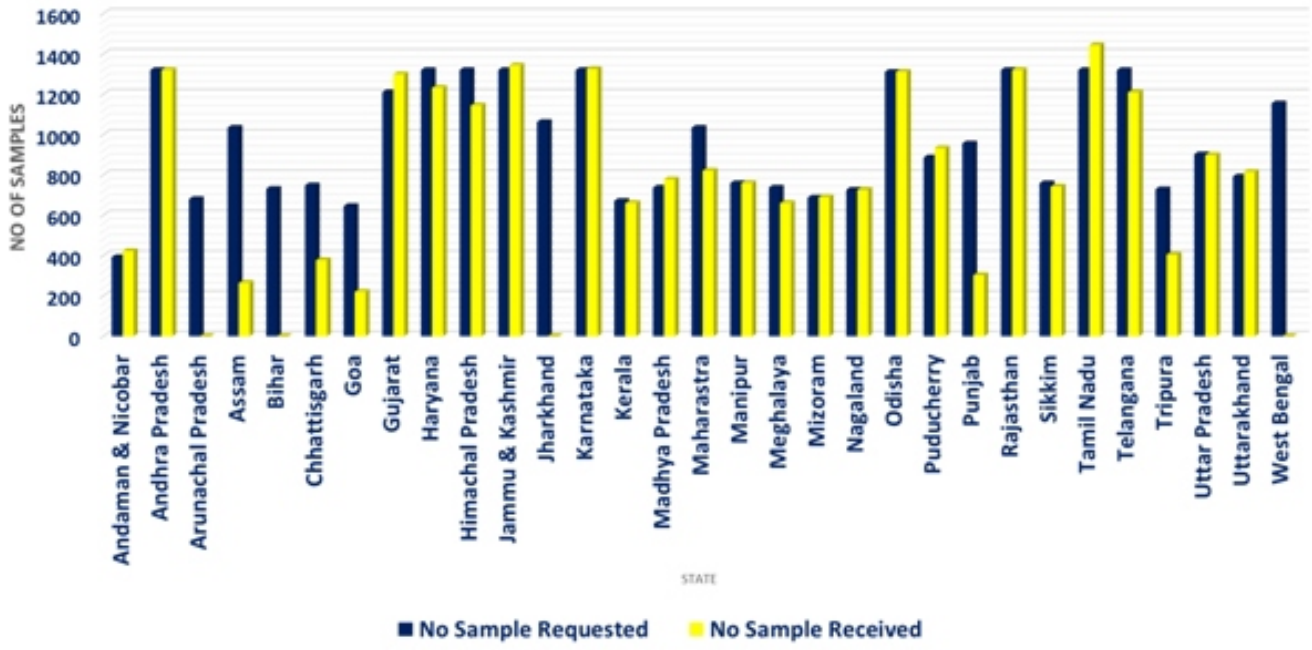
West Bengal
Liaison with State AH dept to be strengthened.
Serum samples as per sampling plan needs to be sent.

At the end of two days deliberations, Mr. R. K. Babu, AFAO, ICAR-NIVEDI presented awareness training on PFMS to all the participants. Dr. Parimal Roy discussed about the technical programmes for 2017-18; Dr. Jyothi Misri, Principal Scientist, ICAR, Krishi Bhavan, New Delhi summed up the outcome of deliberations and Dr. Ashok Kumar, ADG (AH) provided guidance about the future road map. The meeting ended with vote of thanks by Dr. V. V. Limaye, DIS, Pune.

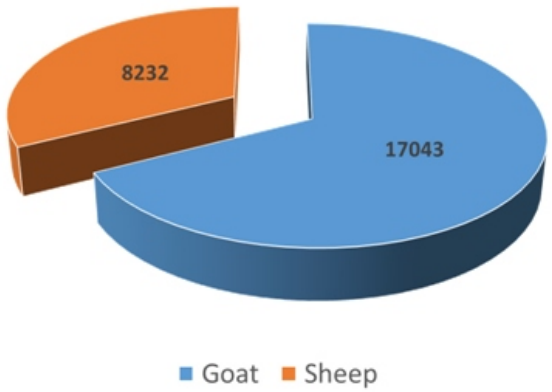
Central Laboratory Report
National Livestock Disease Scenario

National Livestock Serum Repository

As part of the annual disease survey conducted by the AICRP on ADMAS, central unit at ICAR-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 ICAR-NIVEDI for screening against various livestock diseases. During the year 2017-18, it was decided to screen serum samples from small ruminants for peste des petits ruminants (PPR), Brucellosis and bluetongue. Given below are state wise details of serum samples (n=25275) received.



State-wise distribution of serum samples



Species-wise distribution of serum samples

Compliance

The serum samples received at central unit at ICAR-NIVEDI are verified for correctness and adherence as per the sampling plan provided. Given below is the compliance by each of ADMAS center located in different state.

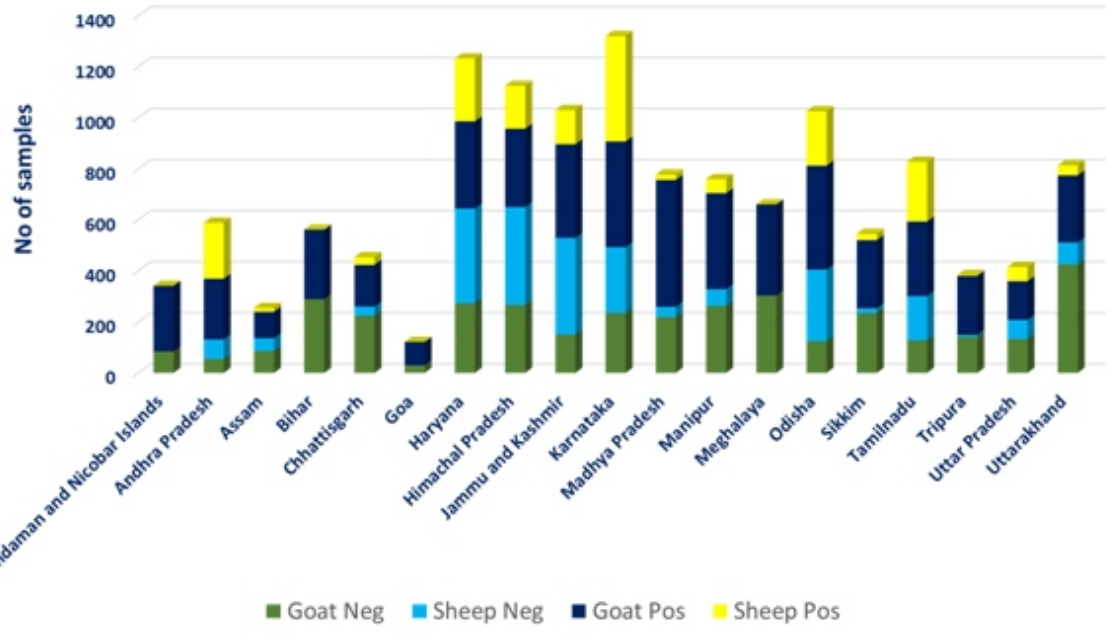
State-wise compliance percent details

State	Compliance %
Andaman and Nicobar Islands	100
Himachal Pradesh	100
Jammu and Kashmir	100
Kerala	100
Madhya Pradesh	100
Meghalaya	100
Odisha	100
Puducherry	100
Sikkim	100
Tamilnadu	100
Andhra Pradesh	98.3
Manipur	98.3
Mizoram	98.3
Nagaland	98.3
Telangana	96.7
Uttarakhand	96.7
Punjab	95
Tripura	95
Haryana	93.3
Karnataka	91.7
Gujarat	88.3
Bihar	85
Rajasthan	85
Chhattisgarh	83.3
Assam	80
Maharashtra	75

State	Compliance %
Uttar Pradesh	38.3
Goa	31.7
West Bengal	10
Arunachal Pradesh	0
Jharkhand	0

Screening of goat and sheep samples for anti-BTV antibodies

During the period under report, a total of 13288 serum samples, comprising 9053 goats and 4176 sheep, from 19 states of India were taken up for screening against bluetongue, of which 59 samples were found unsuitable. The screening was done by recombinant non-structural fusion protein based indirect ELISA. The mean sero-positivity of goat serum samples across the states was 59.6 percent, while that for sheep samples was 44.8 percent. The sero-positivity in goats ranged from 38.2 (Uttarakhand) to 81.5 (Andhra Pradesh) percent, while that in sheep ranged from 22.7 (Assam) to 74 (Andhra Pradesh) percent. In addition to state of Uttarakhand, the states of Chhattisgarh and Bihar were the only states, wherein the percent positivity in goats was less than 50 percent. Of the 9053 goat samples screened, information about the age was not available for 3640 samples. Based on the information available, it was found that prevalence of antibodies increased with increase in age. Easy access of the biting surface in goats has been cited as one of the reasons for high prevalence of anti-BTV antibodies in goats.

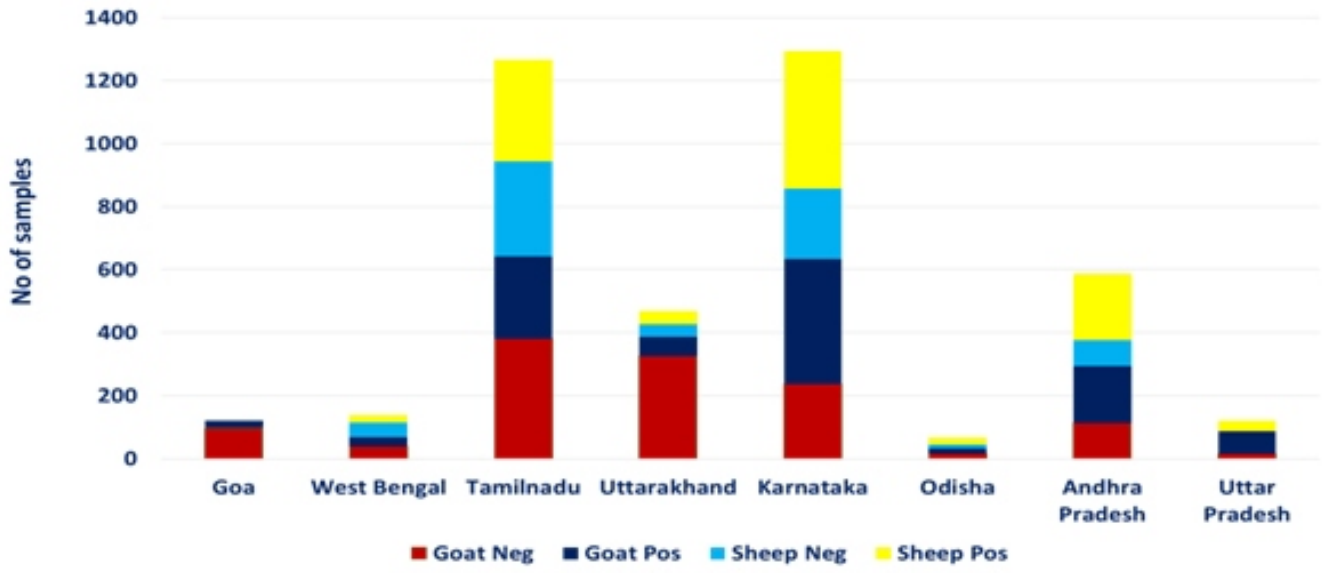


Screening result of goat and sheep samples for anti-BTV antibodies

Screening of goat and sheep samples for anti-PPR antibodies

A total of 4200 serum samples comprising 2267 goats and 1795 sheep from 8 states were taken up for screening against Peste des Petits Ruminants(PPR), of which 138 samples were found unsuitable.

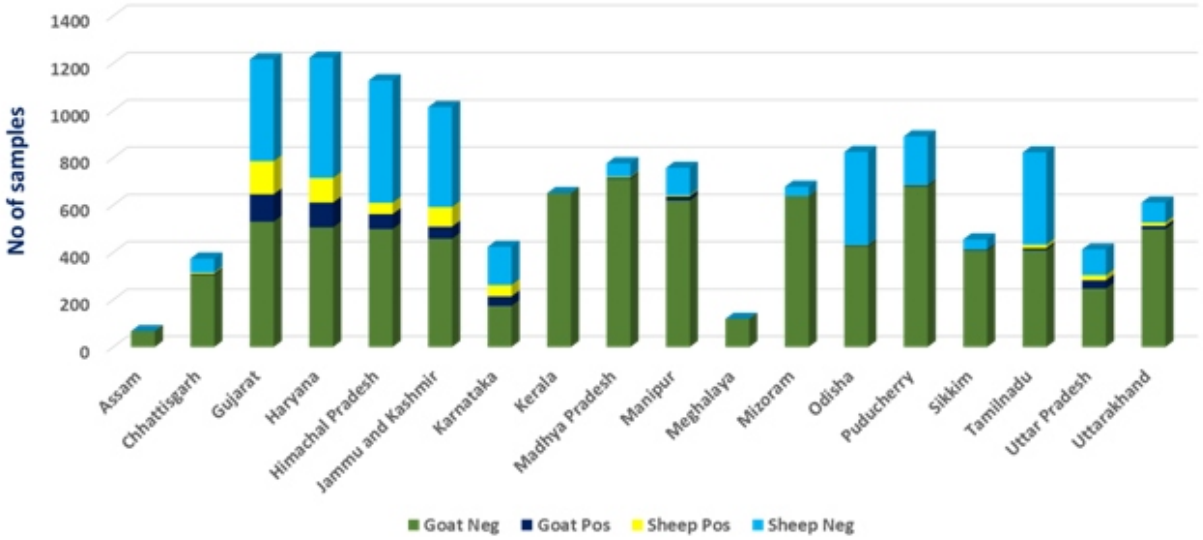
The screening was done by monoclonal antibody based competitive ELISA. The mean sero-positivity of goat serum samples across the states was 46 percent, while that for sheep samples was 60.9 percent. The sero-positivity in goats ranged from 15.8 (Uttarakhand) to 81.8 (Uttar Pradesh) percent, while that in sheep ranged from 33.8 (West Bengal) to 100 (Uttar Pradesh) percent.



Screening result of goat and sheep samples for anti-PPRV antibodies

Screening of goat and sheep samples for anti-Brucella (melitensis) antibodies

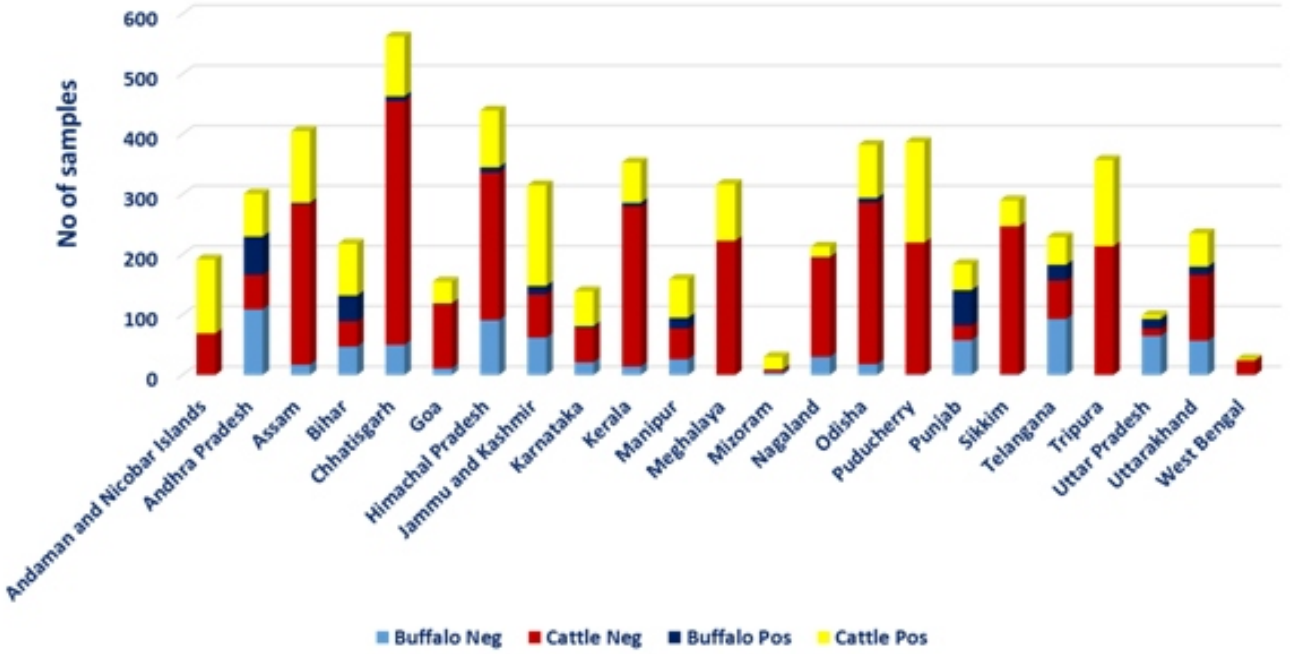
A total of 12665 serum samples, comprising 8545 and 4120 from goats and sheep respectively, from 18 states of India were taken up for screening for antibodies to *Brucella melitensis,* of which 215 samples were found unsuitable. The screening was done by *B. abortus* smooth lipopolysaccharide (LPS) based indirect ELISA. The mean sero-positivity of goat serum samples across the states was 5.8 percent, while that for sheep samples was 12.2 percent. The sero-positivity in goats ranged from 0 (Assam) to 18.7 (Karnataka) percent, while that in sheep ranged from 0 (Mizoram, Sikkim) to 24.5 (Gujarat) percent. In addition to Karnataka, higher percent positivity (>10%) was found among the goat samples of Jammu and Kashmir, Himachal Pradesh, Uttar Pradesh, Haryana and Gujarat. Similarly, higher percent positivity (> mean) was found in sheep samples from the above said states there by corroborating the results found in goats. Uttarakhand was exception to this observation, wherein percent positivity in goat samples was smaller (2.5%), while that was higher (14.1%) in sheep.



Screening result of goat and sheep samples for anti-Brucella (melitensis) antibodies

Screening of cattle and buffalo samples for anti-BoHV-1 antibodies (2016-17)

A total of 6108 serum samples belonging to buffalo (n=1068) and cattle (n=4919) from 23 states of India collected during 2016-17, were taken up for screening for antibodies to Bovine Herpes Virus 1 (BoHV-1), of which 121 samples were found unsuitable. The screening was done by whole virus based indirect ELISA. The mean sero-positivity of cattle serum samples across the states was 34.7 percent, while that for buffalo samples was 27.4 percent. The sero-positivity in buffaloes ranged from 3.2 (Nagaland) to 50.4 (Punjab) percent, while that in cattle ranged from 7.7 (West Bengal) to 64.1 (A & N islands) percent.

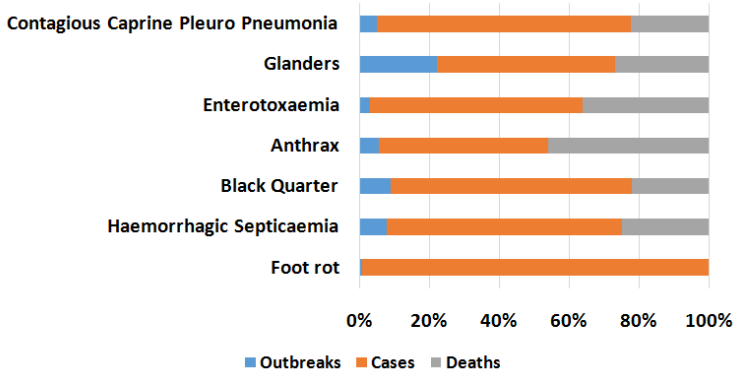


Screening of cattle and buffalo samples for anti-BoHV-1 antibodies

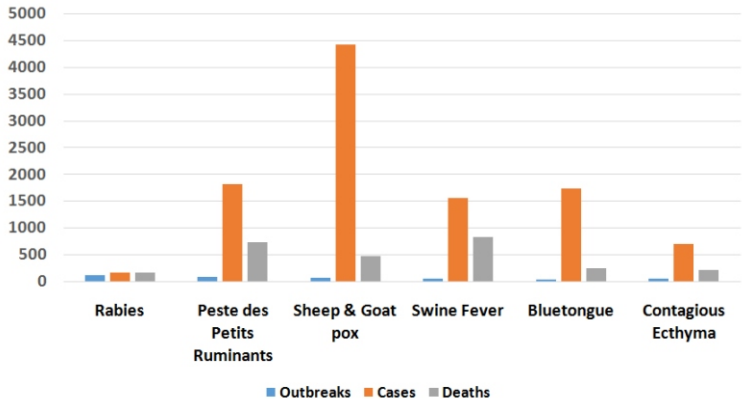
National Animal Disease Referral Expert System (NADRES)

The NADRES database contains information on major livestock diseases in the country along with their associated risk factors. During the period under report, 84270 entries related to livestock diseases in the country were made. Given below are details of the most reported bacterial, viral and parasitic diseases during the calendar year 2017.

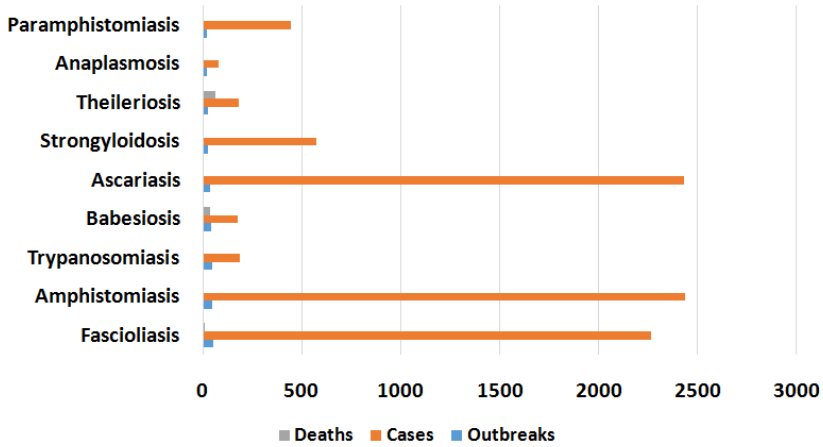
Major bacterial diseases reported during 2017-18



Major viral diseases reported during 2017-18



Major parasitic diseases reported during 2017-18

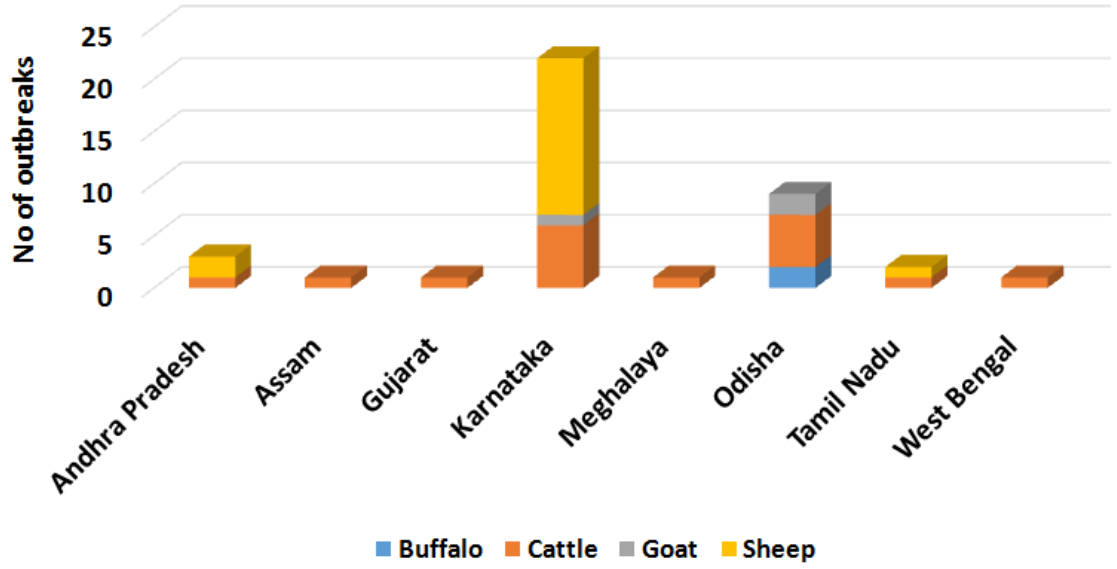


Bacterial Diseases

Anthrax:

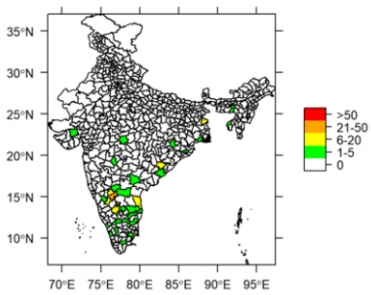
A total of 39 outbreaks in 8 states (AP, Assam, Gujarat, Karnataka, Odisha, Meghalaya, Tamil Nadu and West Bengal) was recorded during 2017. Highest number outbreaks (n=21) were recorded in Karnataka, followed by Odisha (n=9) and Andhra Pradesh (n=3). Large number of outbreaks were recorded in the months of March, February, January and December in that order. Most outbreaks were recorded in Sheep (n=18) and cattle (n=17). The disease outbreaks were mostly concentrated at south to eastern part of India. Analysis of five year outbreak data indicates wave like patterns, which indicates that no regular preventive measures are in place.

State and species wise distribution of Anthrax outbreaks

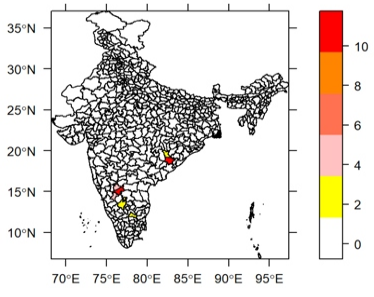


Spatial Distribution of Anthrax

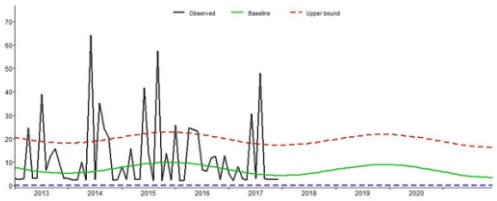
2016-17



2017-18



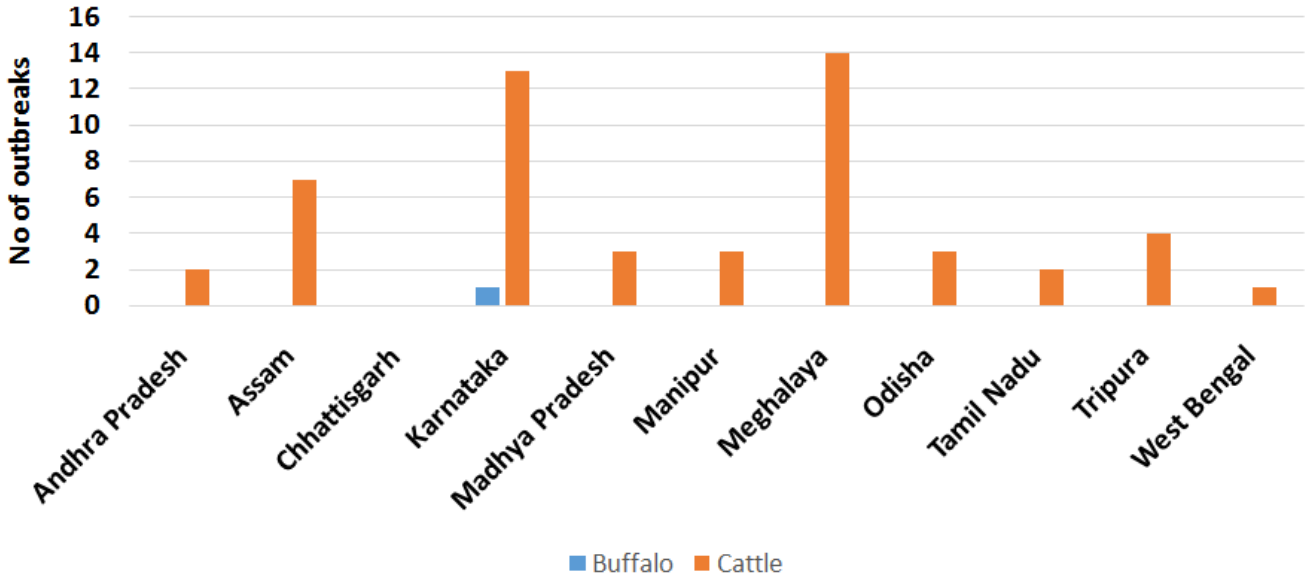
Trend line of Anthrax



Black Quarter:

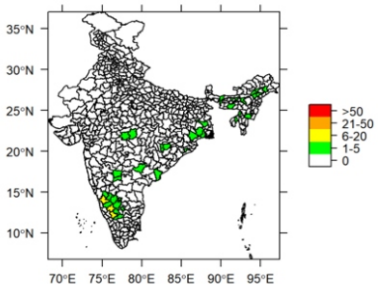
A total of 53 outbreaks of BQ were recorded in the country with large number of outbreaks were recorded in the state of Meghalaya and Karnataka (n=14). Barring a solitary outbreak in buffalo, remaining outbreaks were recorded in cattle. Outbreaks were recorded in all months barring October, although these were recorded in larger frequency during November through April. Trend line shows steady decline, which is good.

State and species wise distribution of Black Quarter outbreaks



Spatial Distribution of Black Quarter

2016-17



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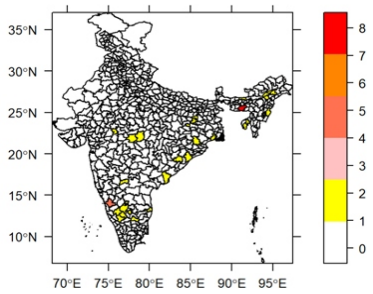
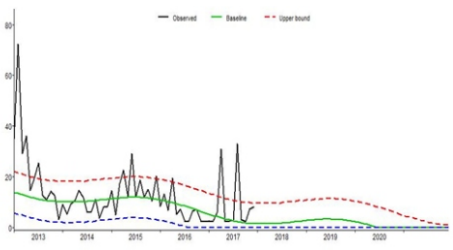


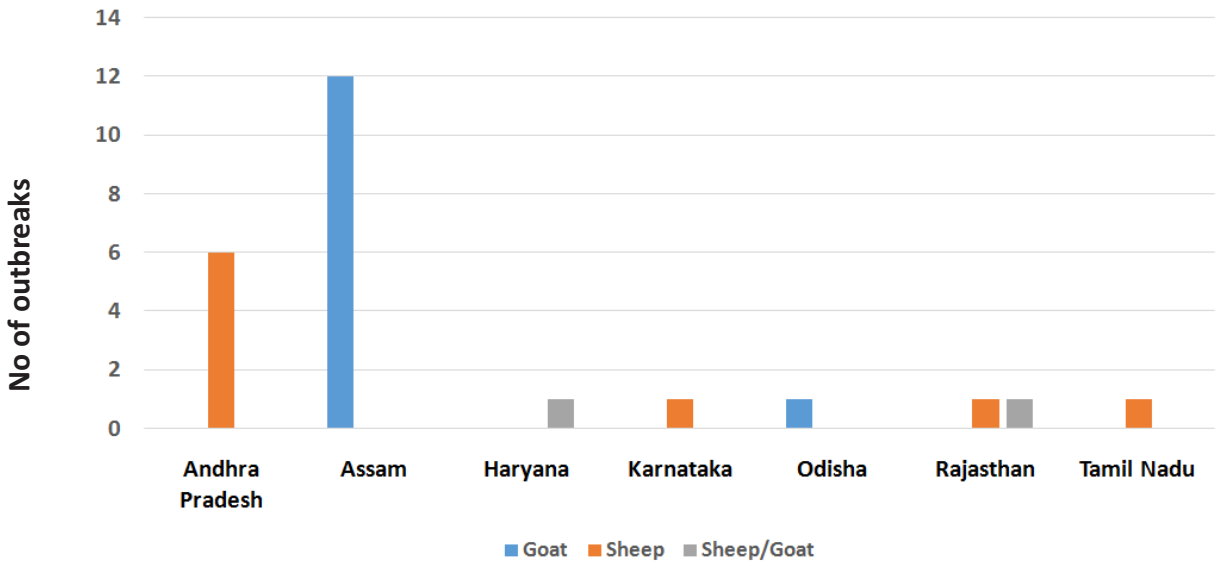
Trend line of Black Quarter



Enterotoxaemia:

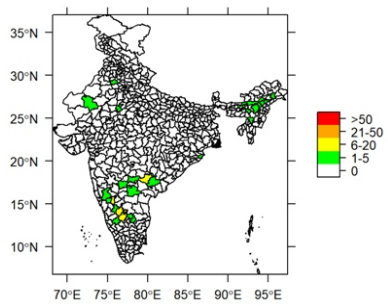
The disease was reported in seven states (Andhra Pradesh, Assam, Haryana, Gujarat, Karnataka, Odisha, Rajasthan and Tamil nadu) with 12 outbreaks in Assam, followed by Andhra Pardesh. Goat were the species affected largely. Higher frequency of the disease was observed during January through April. Trend line shows steady state.

State and species wise distribution of Enterotoxaemia outbreaks

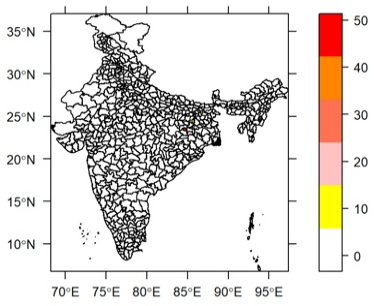


Spatial Distribution of Enterotoxaemia

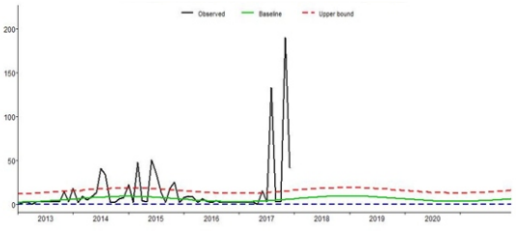
2016-17



2017-18



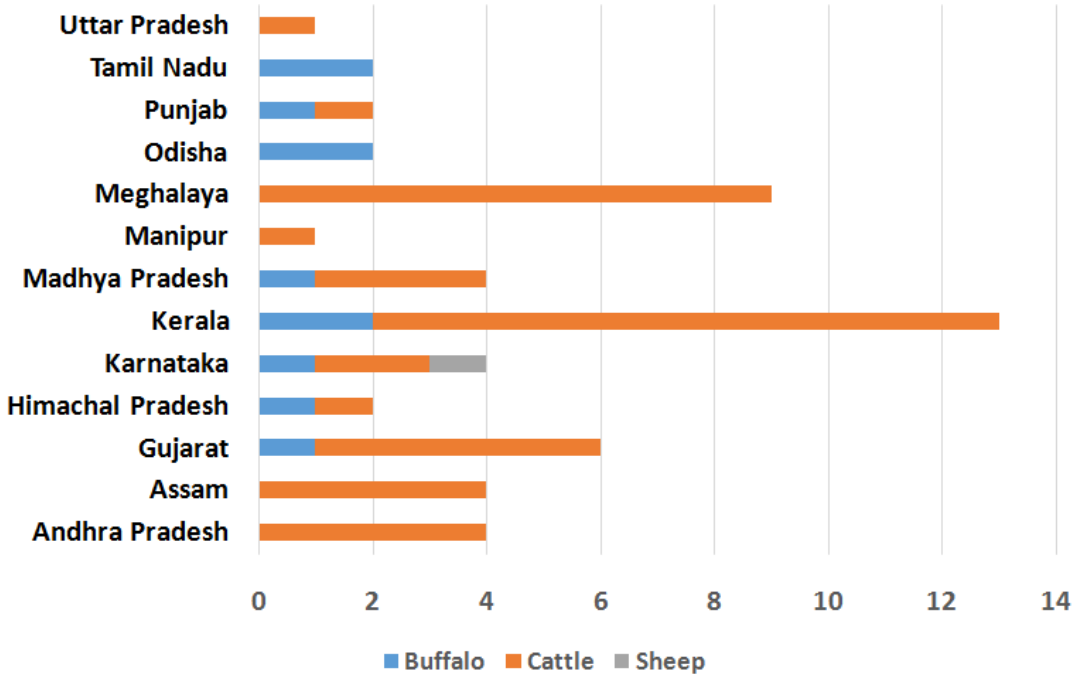
Trend line of Enterotoxaemia



Haemorrhagic septicaemia:

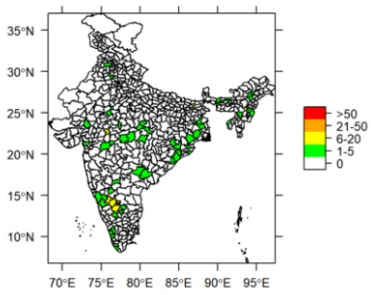
The disease was reported in thirteen states (Andhra Pradesh, Assam, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Manipur, Meghalaya, Odisha, Punjab, Rajasthan, Tamil Nadu & Uttar Pradesh) with a total of 54 outbreaks. Most of the outbreaks occurred in cattle and buffaloes. A solitary outbreak was reported in sheep. Kerala accounted for 13 outbreaks followed by Meghalaya (n=9). The Disease was observed throughout the year and however, the large number of outbreaks recorded in April, mostly due to outbreaks in Kerala.

State and species wise distribution of Haemorrhagic Septicaemia outbreaks

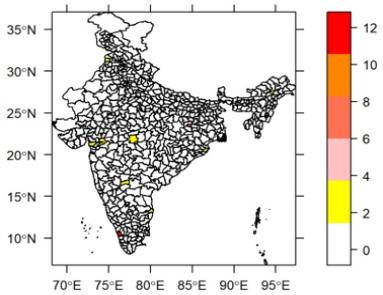


Spatial Distribution of Haemorrhagic Septicaemia

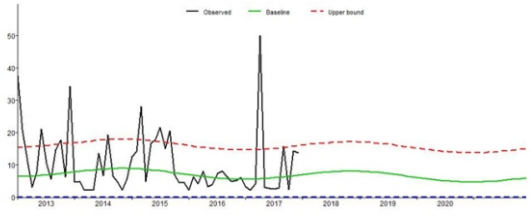
2016-17



2017-18

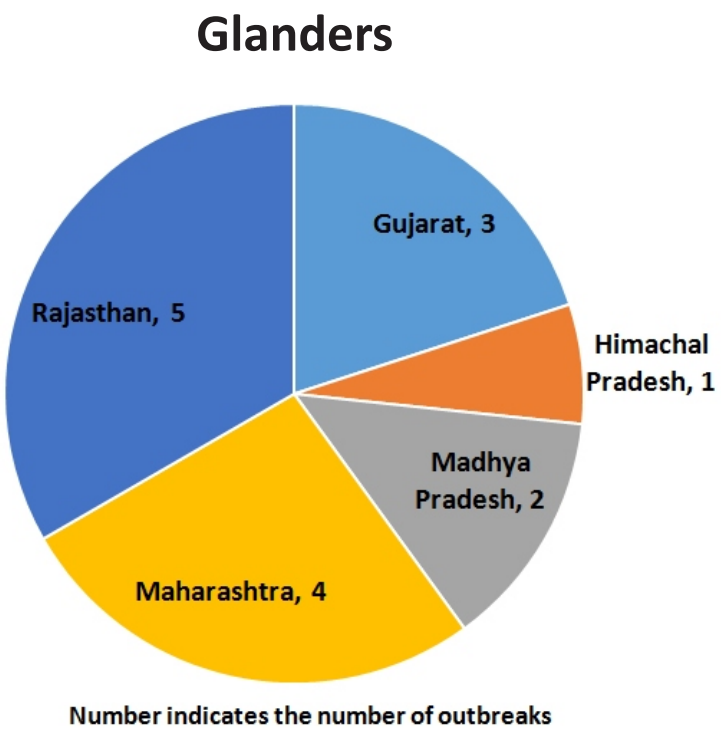


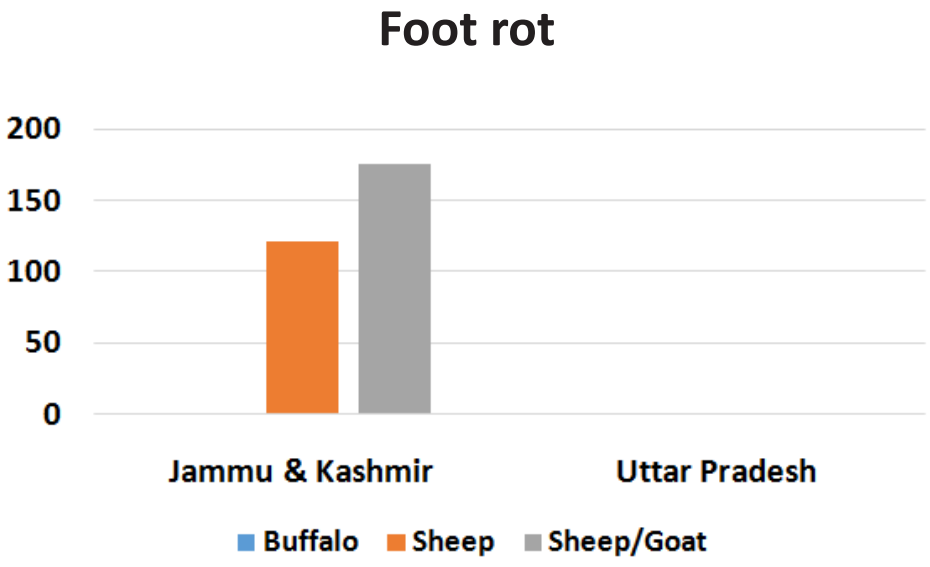
Trend line of Haemorrhagic Septicaemia



Other Bacterial Diseases

Besides above diseases, Glanders, Contagious Caprine Pleuro Pneumonia (CCPP) and Foot rot were other major diseases reported in the country during the year 2017. Fifteen outbreaks of Glanders were reported and Rajasthan, Maharashtra, MP, HP and Gujarat in that order. Of the 299 outbreaks of foot rot reported, 298 were from the state of Jammu and Kasmir; a solitary outbreak was reported from Uttar Pradesh. Out of the 9 outbreaks of CCPP reported, 8 were from Kerala, while one from Odisha.



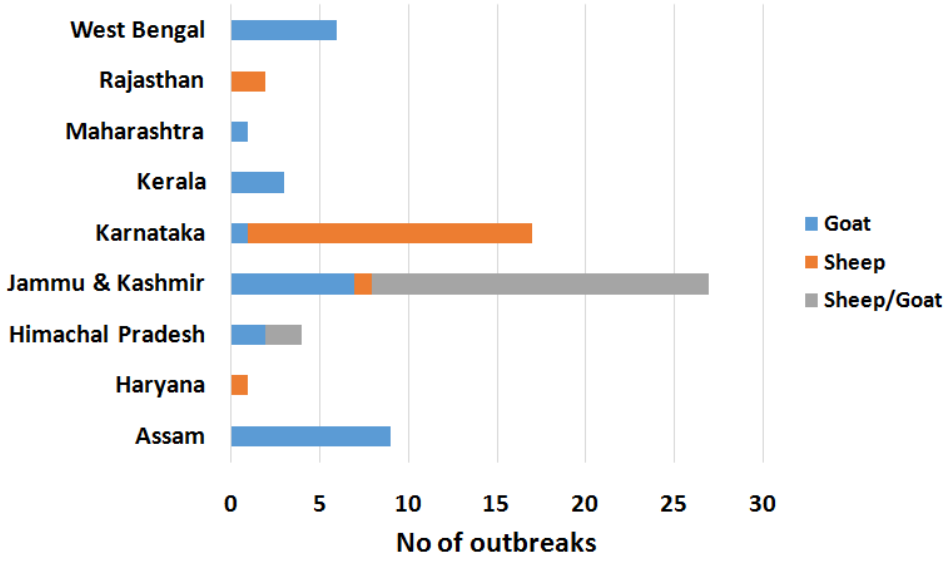


Viral Diseases

Sheep and Goatpox:

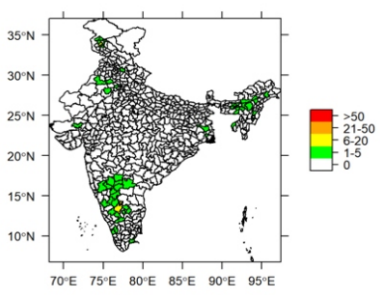
A total of 70 outbreaks were reported in 9 states (Assam, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Maharashtra, Rajasthan and West Bengal). Twenty nine outbreaks occurred exclusively in goats, while twenty occurred exclusively in Sheep. Remaining outbreaks occurred in both the species. The large number of outbreaks were recorded in the state of Jammu & Kashmir (n=27) followed by Karnataka (n=17). In the above two states and also in Himachal Pradesh the disease was noticed in both the species of animals, while in other states it was in either of the species. Majority of the outbreaks were noticed in the month of January, February and March. Wave like pattern of the Trend line (observed) shows the requirement for sustained efforts and nonexistence of regular control mechanism in place.

State and species wise distribution of Sheep and Goat pox outbreaks

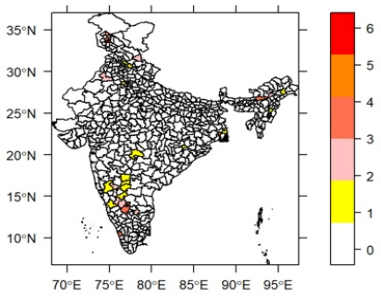


Spatial Distribution of Sheep and Goat Pox

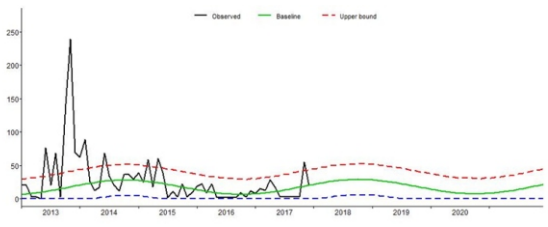
2016-17



2017-18



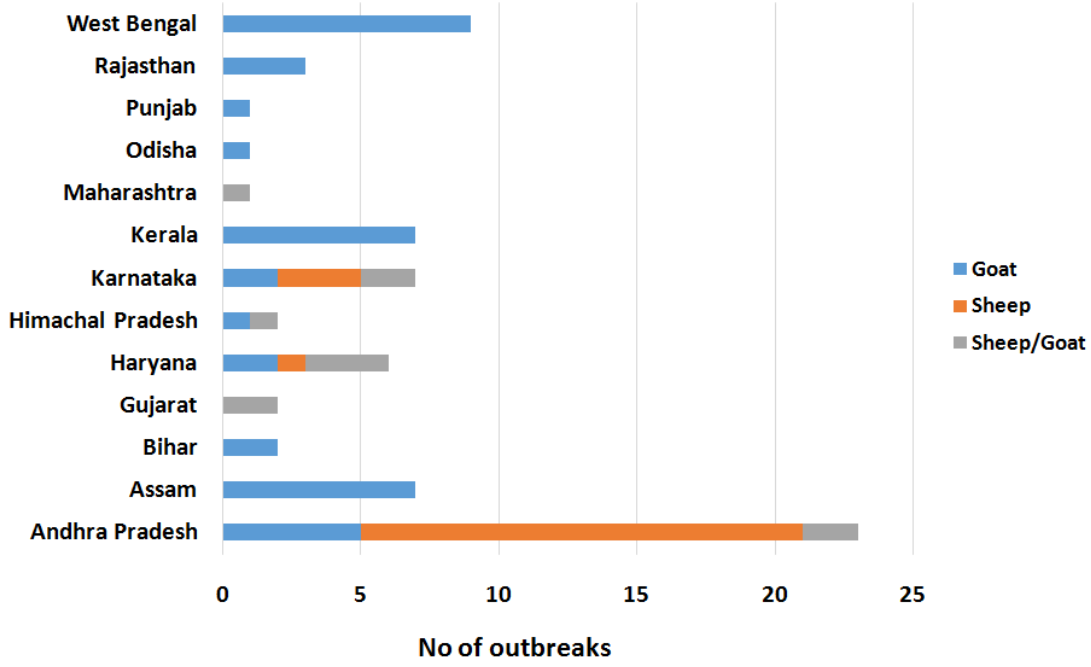
Trend line of Sheep and Goat Pox



Peste des petits ruminants (PPR):

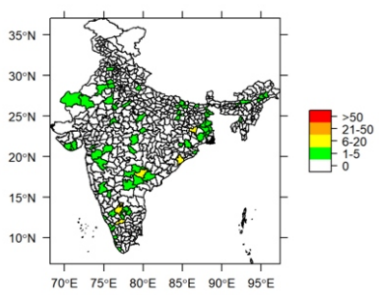
A total of 71 outbreaks were recorded in the 13 states of the country (Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Odisha, Punjab, Rajasthan, and West Bengal). Nearly 56% of outbreaks were observed exclusively in Goat. In the state of Andhra Pradesh, 16 of the 23 outbreaks were exclusively in sheep, while five were exclusively in goats. Disease affected both the species in two outbreaks in the said state. Although outbreaks were reported throughout year, it was frequently seen during January to April. Periodic regression analysis of the past five years shows the volatility of the base line suggesting requirement for further efforts in the ongoing control programme.

State and species wise distribution of Peste des Petits Ruminants outbreaks

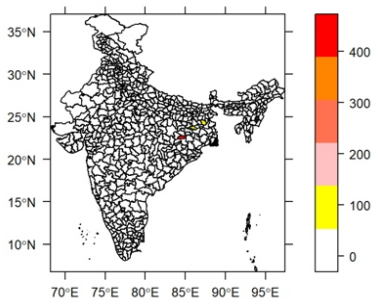


Spatial Distribution of PPR

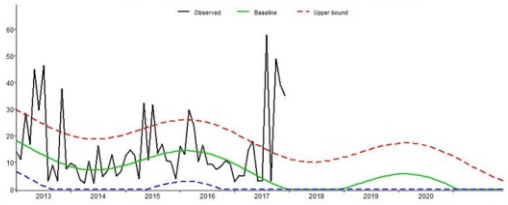
2016-17



2017-18



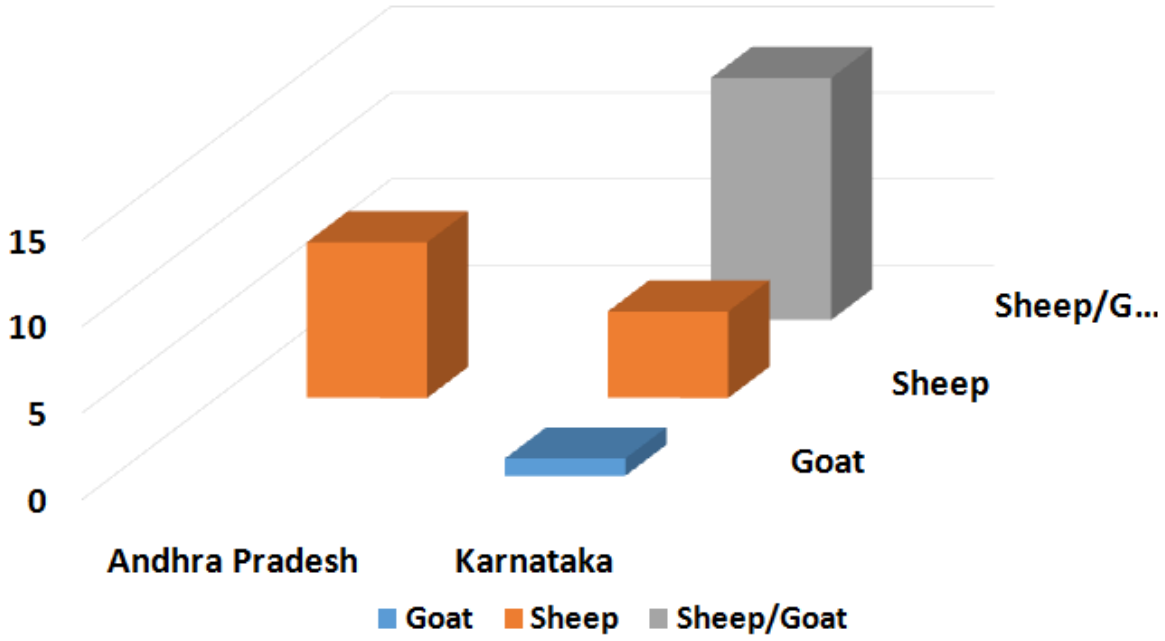
Trend line of PPR



Bluetongue:

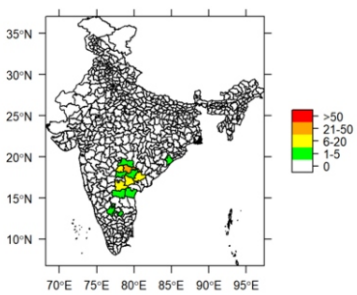
A total of 29 outbreaks were reported in two states;Andhra Pradesh (n=9) and Karnataka (n=20). Sheep were the major species affected by BT. Most outbreaks were noticed during the months of October, November and December.Wavelike pattern of the trendline and steady state of the base indicates non-existence a planned control mechanism in place.

State and species wise distribution of Bluetongue outbreaks

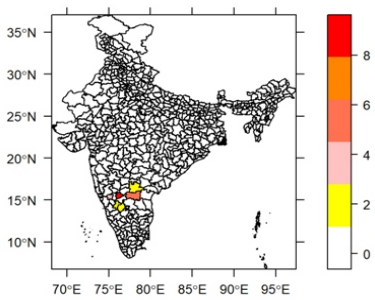


Spatial Distribution of Bluetongue

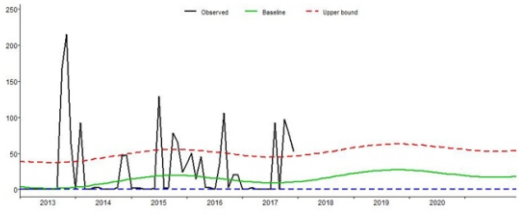
2016-17



2017-18

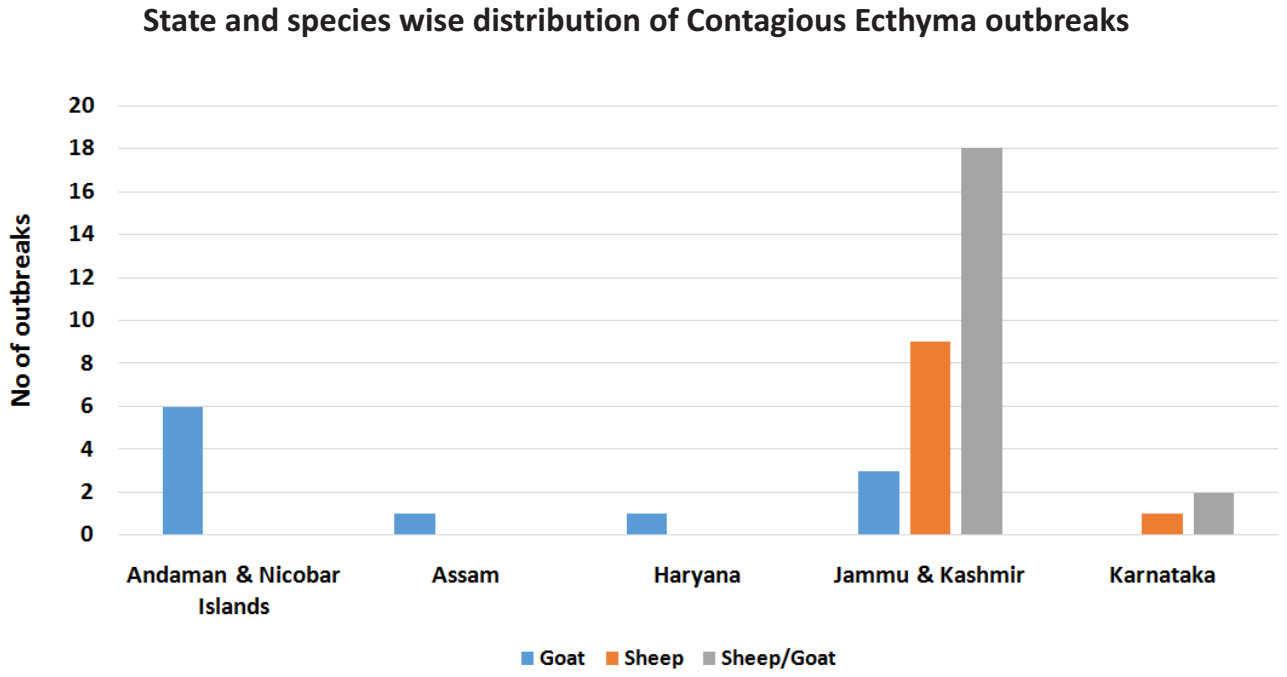


Trend line of Bluetongue



Contagious ecthyma:

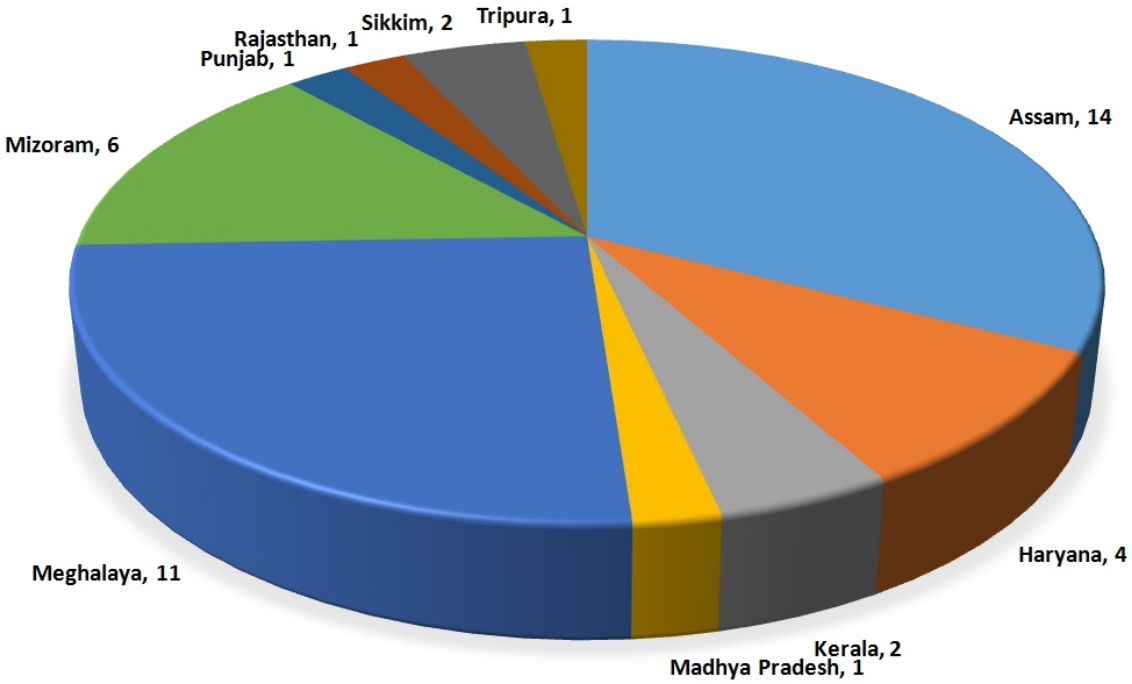
Forty one outbreaks of contagious ecthyma from five states and union territories (A & N Islands, Assam, Haryana, Jammu and Kashmir, and Karnataka) were reported during the year. The state of Jammu Kashmir accounted for the nearly ¾ of the total number and disease in both sheep and goats were reported. Most outbreaks were reported during October, November, January and February.



Classical Swine Fever:

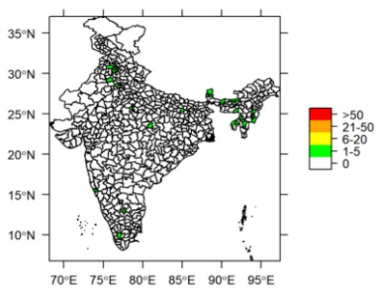
A total of 43 outbreaks were recorded in the country. The disease outbreaks were mostly concentrated at north eastern part (34/43) of India. Trend line shows upward trend, which is a concern.

Statewise distribution of Classical Swine Fever (CSF) outbreaks

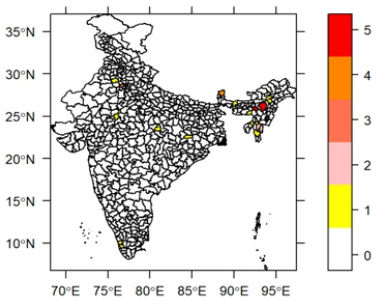


Spatial Distribution of CSF

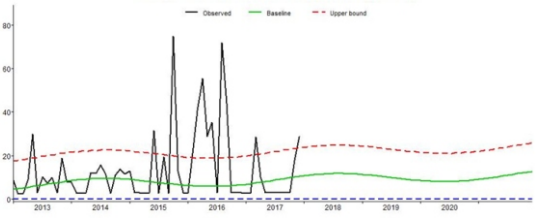
2016-17



2017-18



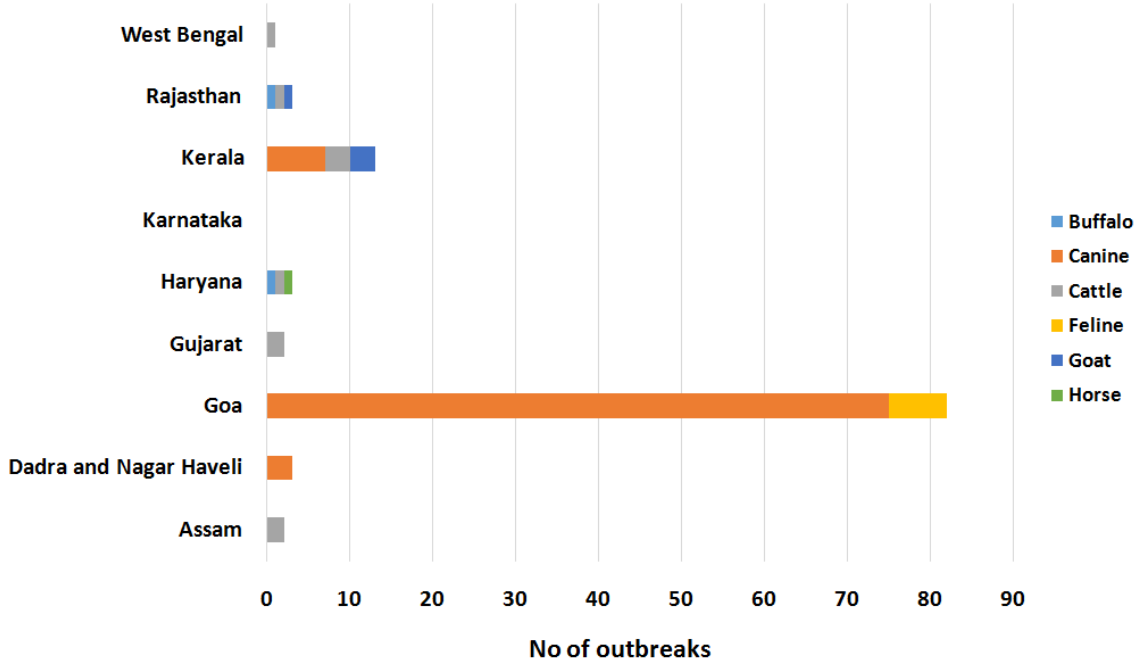
Trend line of CSF



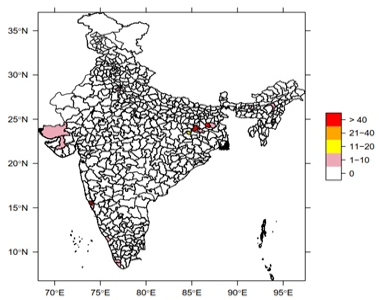
Rabies:

The disease was reported in nine states (Assam, Dadra and Nagar Haveli, Goa, Haryana, Gujarat, Karnataka, Kerala, Rajasthan & West Bengal) with the total cases of 108. Goa (n=75) had the largest disease outbreak. Canine were the species affected largely. The Disease was observed throughout the year. Trend line shows steady state, however, many spikes over the 95% upper CI is a concern.

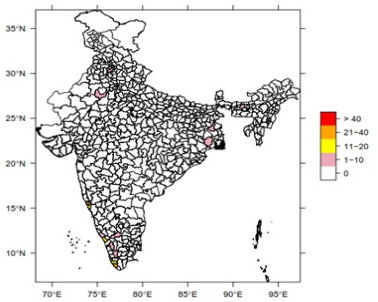
State and species wise distribution of Rabies outbreaks



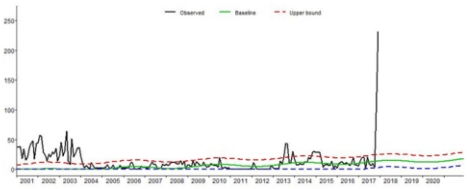
2016-17



2017-18



Trend line of Rabies



Other viral diseases

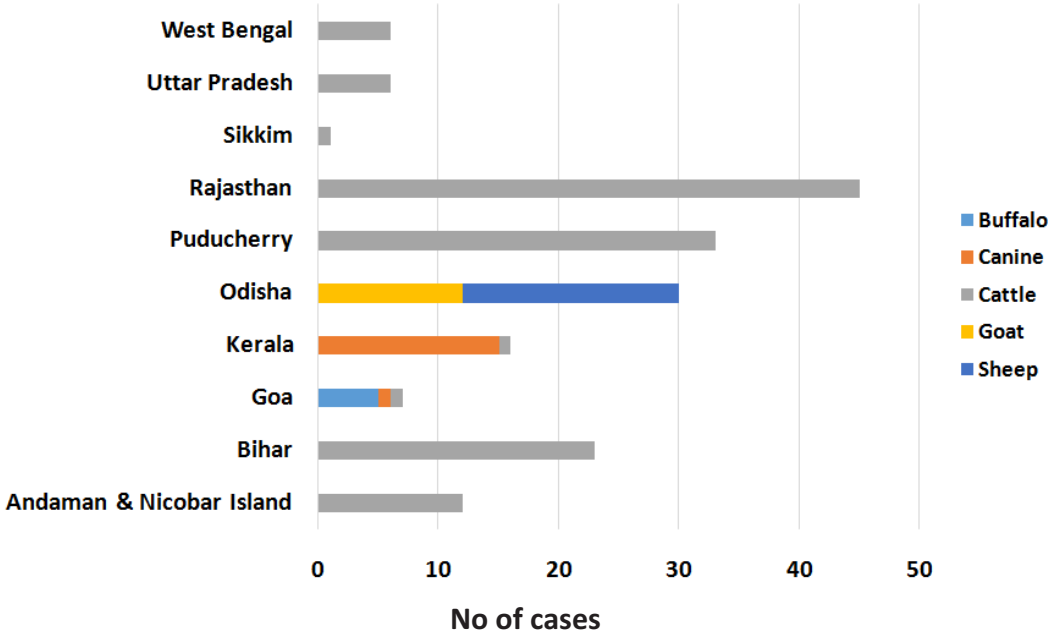
Barring Foot and mouth disease, Capripox, PPR, Bluetongue, Contagious ecthyma and classical swine fever were other the top five viral diseases reported from the country during 2017. Rabies was another major disease reported during the said period.

Parasitic Diseases

Babesiosis:

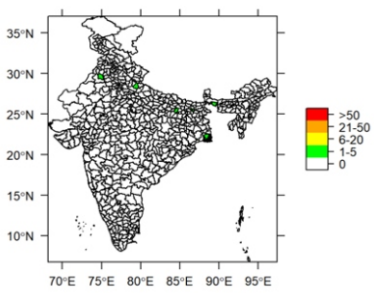
The disease was reported in Ten states (Andaman and Nicobar Islands, Bihar, Goa, Kerala, Odisha, Puducherry, Rajasthan, Sikkim, Uttar Pradesh & West Bengal). A total of 179 cases of Babesiosis were recorded in the country with large number of cases in the state of Rajasthan (45). Babesiosis outbreak was largely observed in Cattle (128) followed by sheep (18). The Disease was observed throughout the year with large number (n=45) of cases in June. Trend line shows upward trend.

State and species wise distribution of Babesiosis cases

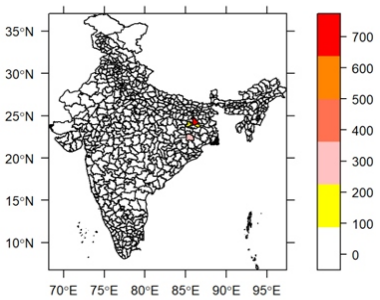


Spatial Distribution of Babesiosis

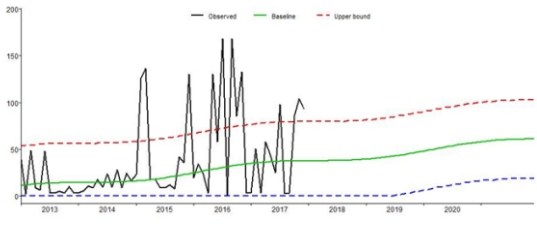
2016-17



2017-18



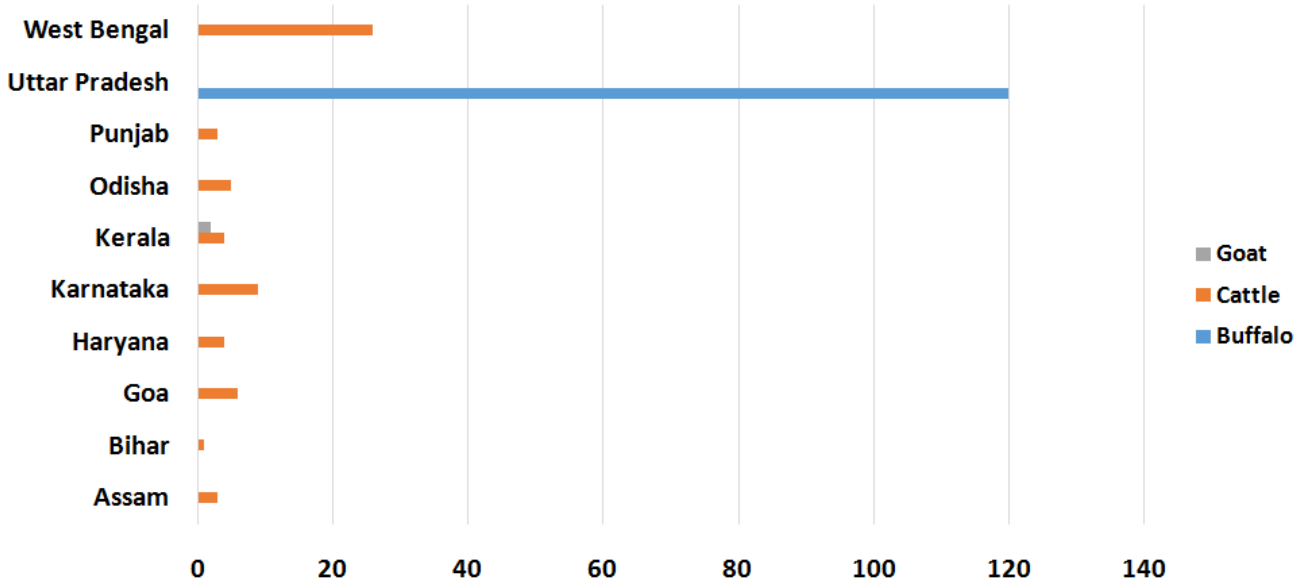
Trend line of Babesiosis



Theileriosis:

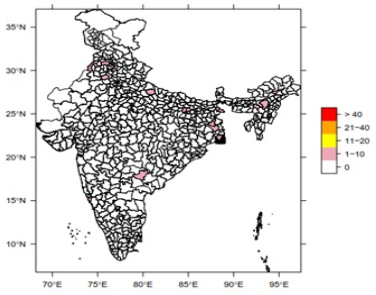
The disease was reported in ten states (Assam, Bihar, Goa, Haryana, Karnataka, Kerala, Odisha, Punjab, Uttar Pradesh & West Bengal). A total of 183 cases of Theilerosis were recorded in the country with large number of cases in the state of Uttar Pradesh (120). Theilerosis cases were largely observed in buffalo (120) followed by cattle (61). Large number of cases were recorded in the month of January. Wavelike pattern of the trendline and steady state of the base indicates non-existence of planned control mechanism in place.

State and species wise distribution of Theileriosis cases



Spatial Distribution of Theileriosis

2016-17



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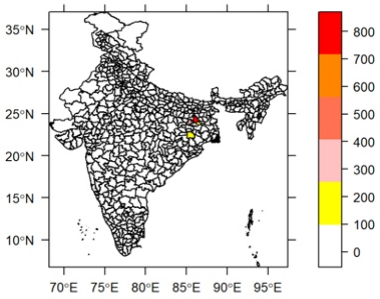
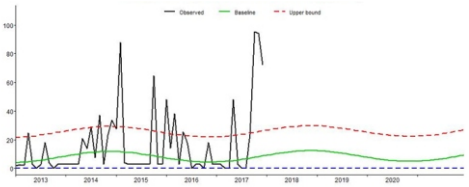


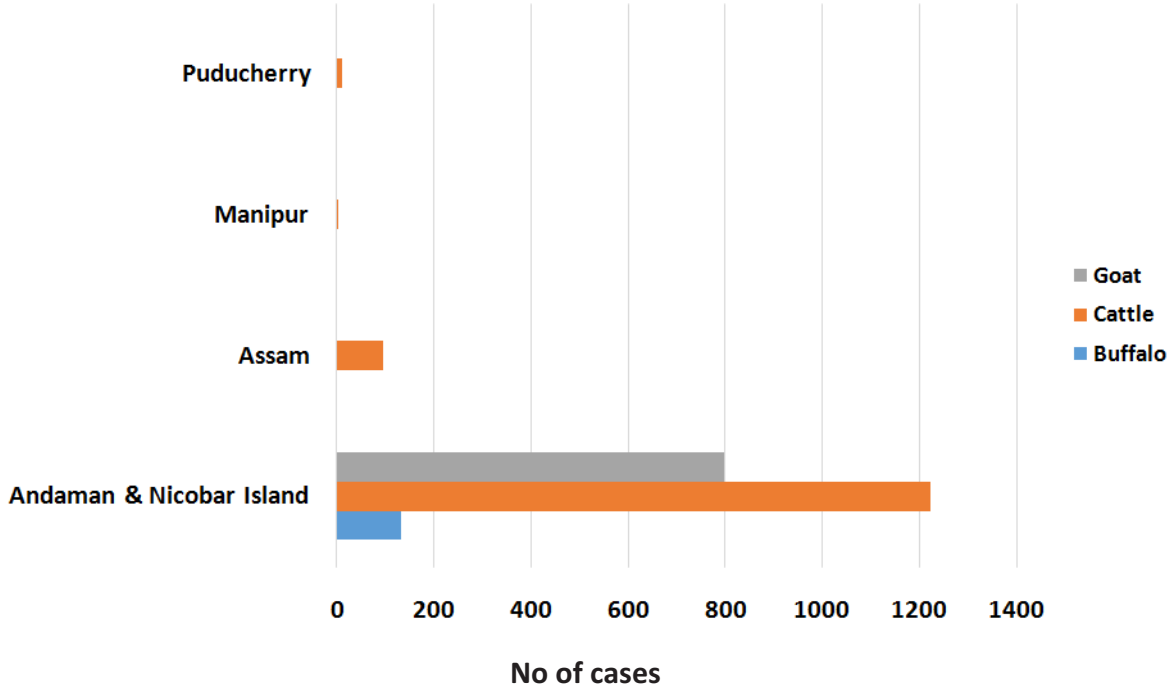
Trend line of Theileriosis



Fasciolosis:

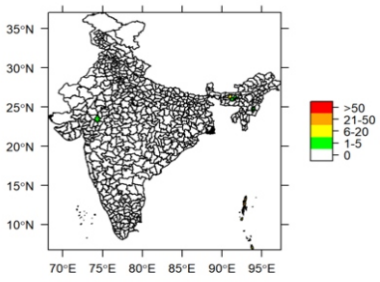
A total of 2263 cases of fasciolosis were recorded in the four states of the country (Andaman & Nicobar Island, Assam, Manipur & Puducherry). Cattle, goat and buffalo were the species affected in that order with 1223 cases in the former species. Trend line shows upward trend. Wavelike pattern of the trendline and steady state of the base indicates non-existence of planned control mechanism in place.

State and species wise distribution of Fasciolosis cases

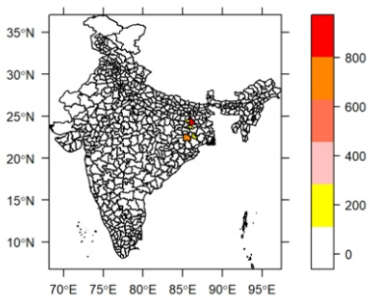


Spatial Distribution of Fasciolosis

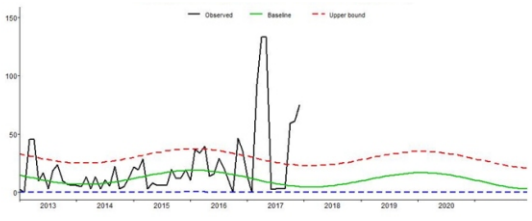
2016-17



2017-18



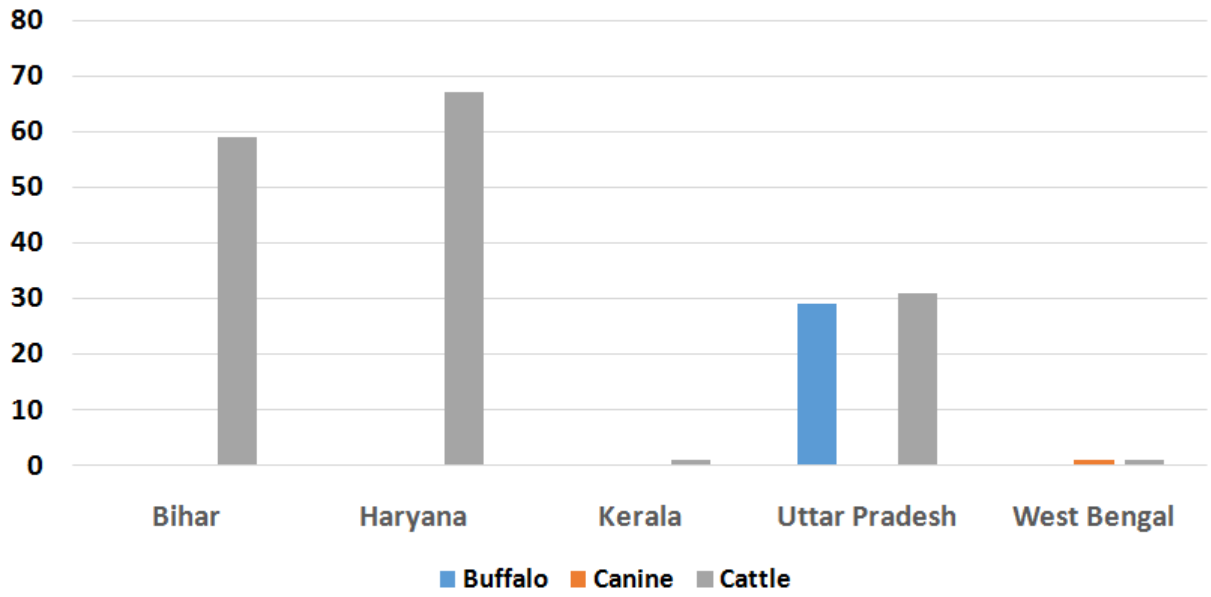
Trend line of Fasciolosis



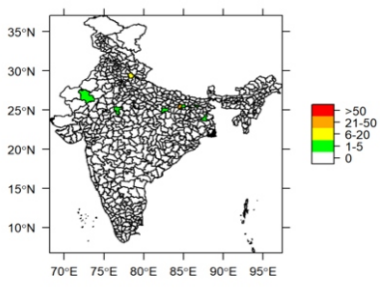
Trypanosomosis:

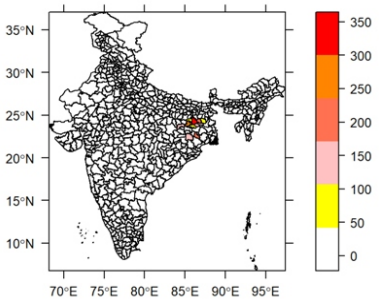
A total of 189 cases were reported in five states of the country (Bihar, Haryana, Kerala, Uttar Pradesh and West Bengal). The cases were largely observed in Haryana (n=67), Uttar Pradesh (n=60) and Bihar (n=59). Disease was largely observed in Cattle (n=159) followed by buffalo (n=29). Trendline shows steady state.

State and species wise distribution of Trypanosomosis cases

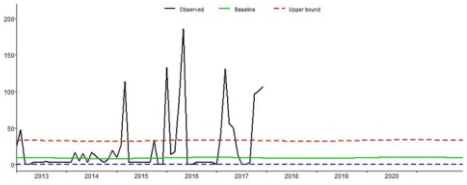


Spatial Distribution of Trypanosomosis





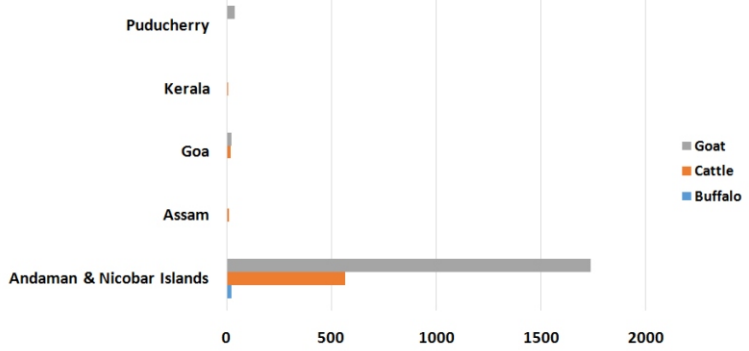
Trend line of Trypanosomosis



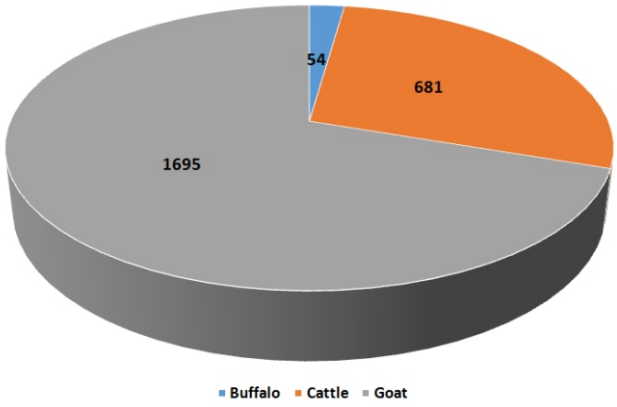
Other Parasitic Diseases

Amphistomosis, ascariosis, Strongyloidosis, were other parasitic diseases which were largely seen in the Andaman and Nicobar Islands. Of the total 2435 cases of amphistomosis, 576 cases of strongyloidosis 2326 and 561 cases respectively were from A & N islands.

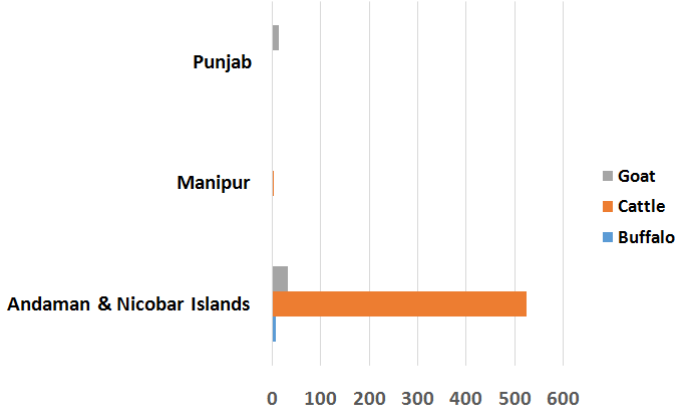
State and species wise distribution of Amphistomosis cases

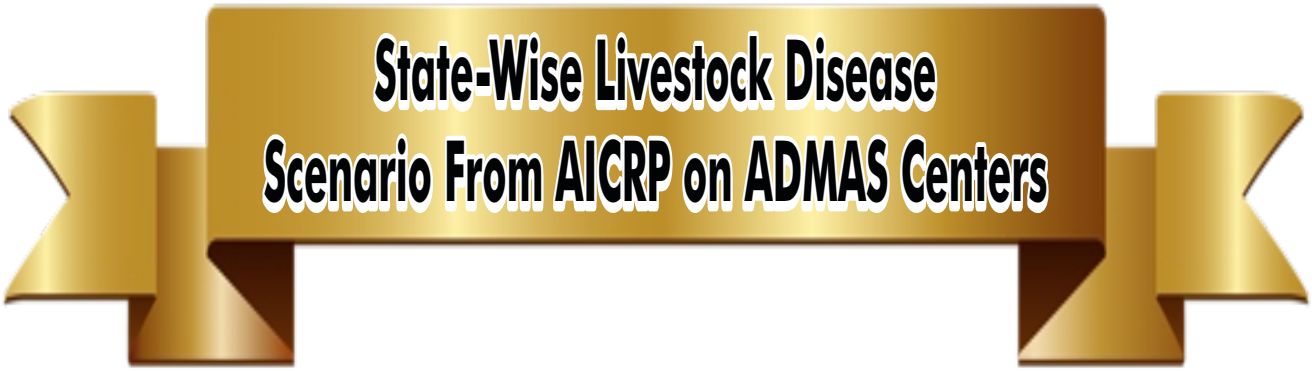


Ascariasis in Andaman and Nicobar Islands



State and species wise distribution of Strongyloidosis cases




State-Wise Livestock Disease
Scenario From AICRP on ADMAS Centers

Andaman and Nicobar (Port Blair)

Year of start: 2015

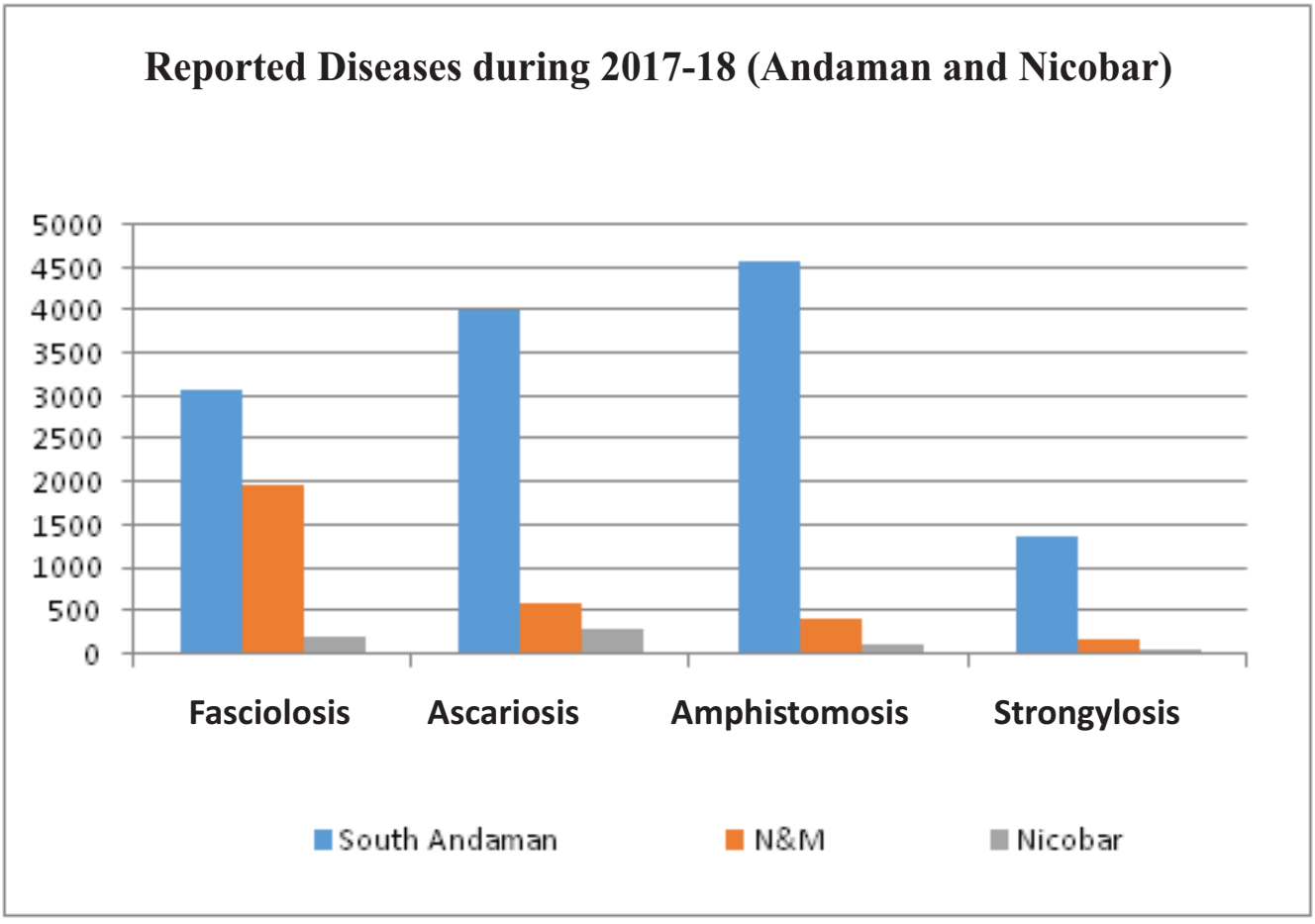
Address	Principal Investigator	Co-Principal Investigator
Division of Animal Science ICAR-Central Island Agricultural Research Institute, Port Blair Ph: 03192-250436 Fax: 03192-251068	**Dr. Jai Sunder** Principal Scientist, Email: jaisunder@rediffmail.com	**Dr. T. Sujatha** Scientist, Email: drsujathaars@rediffmail.com

Fund allotted: Rs.4,00,000/-
Fund Utilized: Rs.3,94,176/-

Summary

- During the year 2017-18, no outbreak of anthrax, black quarter, enterotoxaemia, haemarragic septicaemia, brucellosis, bluetongue, classical swine fever, IBR, rabies, pestis des petits ruminants, goat pox, babesiosis, theileriosis and trpynosomosis was reported in Andaman and Nicobar Islands.
- A total of 18670 clinical cases of various parasitic, bacterial and viral diseases were reported. Parasitic diseases (99%) were the major problem followed by bacterial and viral diseases (1%).
- The main parasitic infections reported were ascariosis, fasciolosis, and amphistomosis. Parasitic cases were more in caprine (48%) followed by cattle (41%) and buffaloes (7%). However, in proportion to their respective population, the prevalence was more in buffaloes followed by cattle.
- Occurrence of parasitic diseases was comparatively more in South Andaman (74%) followed by North (21%) & Middle Andaman and Nicobar (5%).
- A total of 149 goats were affected in 10 outbreaks of contagious ecthyma. Most of the outbreaks were reported during August-February months. Molecular confirmation of the Orf virus presence was done in the scab samples collected from affected goats.

- A total of 479 goat serum samples were collected from different parts of these islands and were screened for presence of antibodies against peste des petits ruminants (PPR), bluetongue and brucellosis. Out of 395 sera sample, 217 (54.93%) showed antibodies against PPR virus. ELISA was negative for brucellosis (479 goat samples). Out of the 341 goat sera samples screened for bluetongue by ELISA, 257 samples showed positive reaction.
- Sero-screening by rapid test card for bovine tuberculosis was negative in all the 79 cattle serum samples.
- Serological evaluation by rapid test card for avian influenza virus Ag was negative in all the 50 cloacal swabs collected from Nicobari fowl, broilers, layers, desi birds and Gramapriya dual purpose breeds.



Andhra Pradesh (Vijayawada)

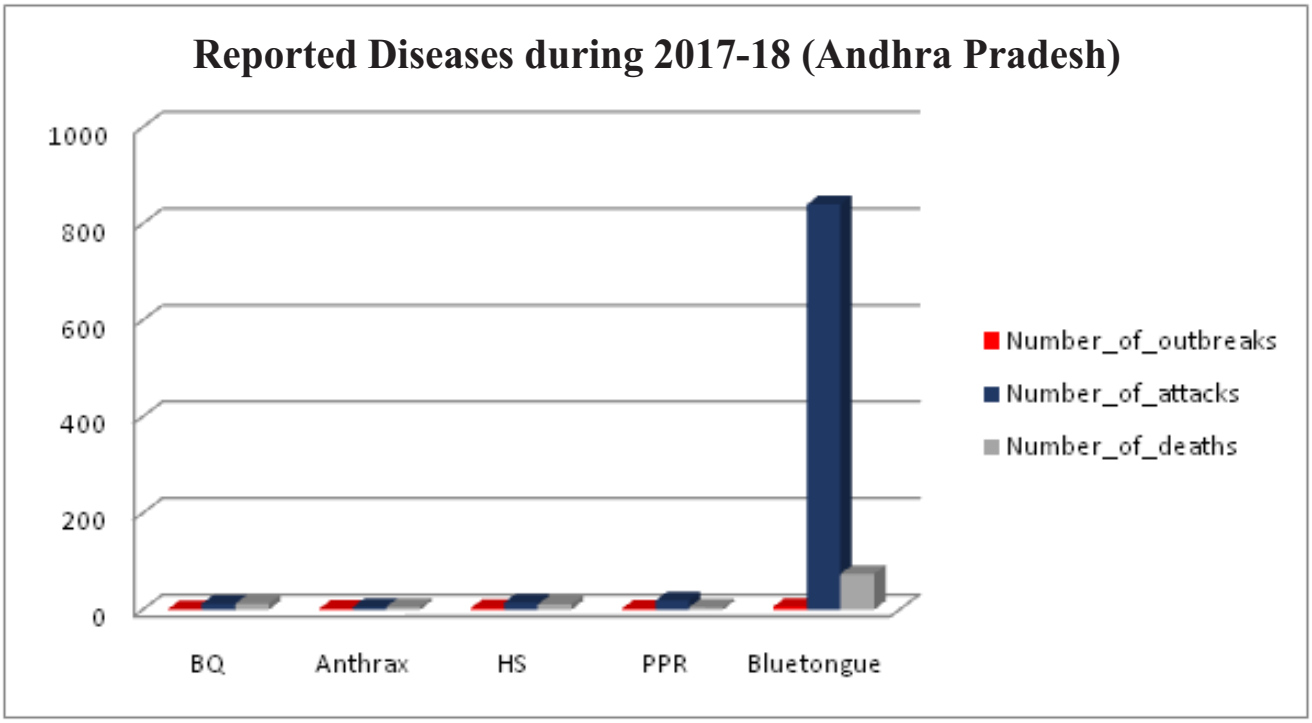
Year of start: 2014

Address	Principal Investigator	Co-Principal Investigator
Veterinary Biological & Research Institute, Veterinary Hospital campus, Labbipet, Vijayawada - 520 010 Andhra Pradesh.	**Dr. L. Ratna Kumari,** Joint Director (AH). Email: ratnakumarilam@yahoo.com	**Dr. N. Mrunalini,** Assistant Director (AH), Email: mrunalini_n@hotmail.com

Fund allotted: Rs.4,25,000/-
Fund Utilized: Rs.4,24,993/-

Summary

- One outbreak of Black quarter was reported with 12 attacks having 100% CFR in bovines and 373 vaccinations were conducted.
- Three outbreaks of HS was recorded with 15 attacks having 73.3% CFR in bovines and 1,444 vaccinations were done.
- No outbreak of ET was recorded during the Year.
- Anthrax was recorded in small ruminants (2 outbreaks, 6 attacks and 6 deaths) and 14,343 vaccinations were conducted.
- A total of 3,000 sera samples of different species were screened against brucellosis and 319 (10.63%) were found positive.
- Total of 1,737 sera samples of different species were tested by ELISA for Chlamydiosis and 50 were found positive.
- A total of 507 bovine sera samples were tested for Tuberculosis and 597 sera samples were tested for Jhone's Disease by AB ELISA. Of which 57 samples were found positive for TB, while 181were found positive for JD.
- Six outbreaks of Bluetongue was recorded with 840 attacks and 74 deaths (8.8% CFR)
- Two outbreaks of PPR was recorded with 19 attacks and 5 deaths (55.5% CFR)
- No outbreaks of Sheep pox, Goat pox were recorded during the year.
- Out of 1,279 bovine sera samples screened for IBR by ELISA, 597 were sero positive.
- During the year under report, Trypanosomiasis, Microfilariasis, Theilariasis and Amphistomosis were reported in bovines from different districts of Andhra Pradesh In sheep & goat, disease such as Amphistomosis, Fasciolosis, Strongylosis were recorded.


Reported Diseases during 2017-18 (Andhra Pradesh)
1000
800
600
400
200
0
BQ
Anthrax
HS
PPR
Bluetongue
Number_of_outbreaks
Number_of_attacks
Number_of_deaths

Arunachal Pradesh (Nirjuli)

Year of start: 2015

Address	Principal Investigator	Co-Principal Investigator
Disease Investigation Laboratory, Department of Animal Husbandry & Veterinary, Nirjuli, Itanagar-791109	**Dr. Omit Tapir ,** DIO, Email:yangtapir02@gmail.com	**Dr. Gyamnya Baki Garam** Email: niyango@gmail.com

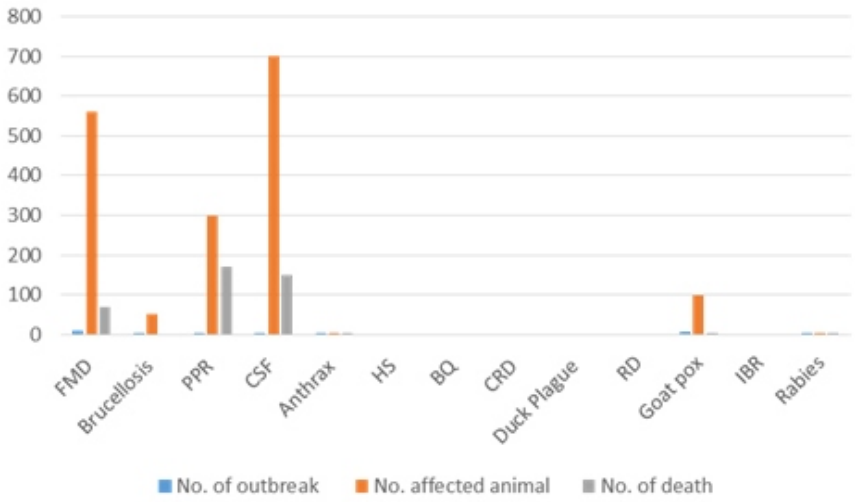
Fund allotted: Rs.9,00,000/- (2016-17)

Fund Utilized: Rs.: 9,00,000/-

Summary

- During the year 2017-18, 30 outbreaks of six diseases viz., Brucellosis (3), PPR (5), CSF (5), Goat pox (6), Anthrax (1) and FMD (10) were reported in the state.
- Three outbreaks of brucellosis was reported with 52 cases.
- Five outbreaks of PPR leading to the death of 170 Goats were reported in 3 districts.
- Five outbreaks of CSF affecting 700 pigs in 6 districts leading to the death of 150 were reported.
- Six outbreaks of Goat pox were reported from 3 districts which includes 100 attacks and 3 deaths.
- One case of Anthrax was reported from Papum pare district.
- Ten outbreaks of FMD were reported in 6 districts with death of 70 animals.

Reported Diseases during 2017-18 (Arunachal Pradesh)



Assam (Guwahati)

Year of start: 2010

Address	Principal Investigator	Co-Principal Investigators
College of Veterinary Science Assam Agricultural University(AAU), Khanapara, Guwahati - 781022 Ph: 0361-2331501 Fax: 0361-2330114	**Dr. S. K. Das** Email: drskdas53@gmail.com	**Dr. D. K. Bhattacharya** Email: dilipbhatta@live.com, dilipkrbhatta@gmail.com **Dr. Kuntola Roy** Email: drkuntola79@gmail.com

Fund allotted: Rs.6,20,000/-
Fund Utilized: Rs.6,19,939/-

Summary

- A total of 16 different diseases including bacterial, viral and parasitic disease have been encountered in the period 2017-18.
- Among the bacterial diseases of ruminants and small ruminants BQ, HS, Anthrax, Enterotoxaemia, Listeriosis and Leptospirosis have been encountered.
- Among the bacterial diseases of ruminants BQ has been found to be the major killer disease causing the death of 89 animals out of which 122 were affected in a total of 9 outbreaks. BQ has been reported from 5 different districts of Assam viz. Kamrup, Dhemaji, Lakhimpur, Dibrugarh and Baksa, out of which the highest outbreak was recorded from Kamrup (3) district having a total mortality of 61 out of 74 animals affected. The least was recorded from Dibrugarh with one outbreak attacking 3 animals and 1 mortality out of it.
- A total of 6 outbreaks of HS has been reported from three districts of Assam viz. Karbi Anglong, Dhemaji and Kamrup. Among them the highest outbreak (4) was reported from Kamrup district attacking 107 animals out of which 87 died. The least was recorded from Dhemaji district (1) attacking 3 animals and killing 1.
- A single outbreak of Anthrax has been reported from Lakhimpur district with one outbreak, attacking 13 animals out of which 10 died.
- Other bacterial diseases like Listeriosis and Leptospirosis has also been reported from Dhemaji district with 1 outbreak of Listeriosis attacking 5 animals and killing 2 out of it. Leptospirosis has been reported from Lakhimpur district with a single outbreak attacking 7 animals but no mortality was reported.

- Among the diseases of small ruminanats Enterotoxaemia outbreak has been reported from districts viz. Nalbari, Golapara, Sonitpur, Darrang, Golaghat, Morigaon, Dhemaji, Sivasagar, Kamrup and Karbi Anglong. Even though the number of outbreak has been recorded from Sonitpur and Darrang districts with 2 outbreaks each, the highest mortality was reported from Golaghat district where in a single outbreak it attacked 48 animals out of which 31 animals died.
- Among the viral diseases CSF, PPR, Goat pox, Rabies and Orf were reported in the year 2017-18. CSF has been found to be the major killer disease in the swine population reaching an outbreak number of 19 in different districts viz. Jorhat, Dhemaji, Karbi Anglong, Lakhimpur, Kokrajhar, Nalbari and Kamrup. Among them the highest number of outbreak was recorded from Karbi Anglong (7) affecting 94 animals out of which 50 died. However, the highest mortality was reported from Kamrup district, where in only 2 outbreaks it affected 96 animals and killing 76 out of them.
- Goat pox is another important viral disease affecting the goat population. It has been reported from districts viz. Sonitpur, Nalbari, Kamrup and Lakhimpur. The highest outbreak was reported from Sonitpur district with 3 outbreaks affecting 67 animals and killing 24 out of it. The least was reported from Lakhimpur district with a single outbreak affecting 13 animals and killing 7 out of it.
- PPR has been reported from 2 districts of Assam viz. Sivasagar and Morigaon with 2 outbreak each. The highest mortality was recorded from Morigaon district killing 30 animals out of the 90 affected.
- Two cases of Rabies have been reported from Nalbari and Golaghat district with 1 outbreak each. The highest mortality was reported from Nalbari district killing 19 animals out of the 20 affected.
- A single outbreak of Orf was also reported from Karbi Anglong district, affecting 25 animals out of which 12 animals died.
- Among the poultry diseases Duck Plague and Ranikhet were encountered in the year 2017-18. The outbreak of Duck Plague was more in comparison to Ranikhet with a total of 7 outbreaks. The highest outbreak of Duck Plague was recorded from Karimganj district with 3 outbreaks affecting 295 birds and killing 239 out of it. However, the highest mortality was recorded from Bongaigaon district, where in a single outbreak it affected 347 birds out of which 343 birds died.

- Outbreak of Ranikhet was reported from 3 districts of Assam with 1 outbreak each viz. Barpeta, Karbi Anglong and Kamrup. The highest outbreak was recorded from Barpeta district affecting 200 birds and leading to the death of 175 birds.
- Among Parasitic diseases Theileriosis, Fasciolosis and Amphistomiasis have been reported. A single incidence of Theileriosis was reported from Lakhimpur district, affecting 3 animals but there were no cases of mortality.
- A single report of Amphistomiasis was reported from Karbi Anglong district affecting 13 animals with no mortality.
- Fasciolosis was reported from four districts of Assam viz. Lakhimpur, Jorhat, Kokrajhar and Karbi Anglong. The highest mortality was recorded from Jorhat with a mortality of 7 out of the 37 affected animals.
- Apart from these diseases other diseases like Endometritis and Mange has also been reported from Karbi Anglong district affecting 15 animals with no record of mortality.
- A single report of Mange was reported from Udalguri district affecting 15 animals out of which 3 animals died.

Bihar (Patna)

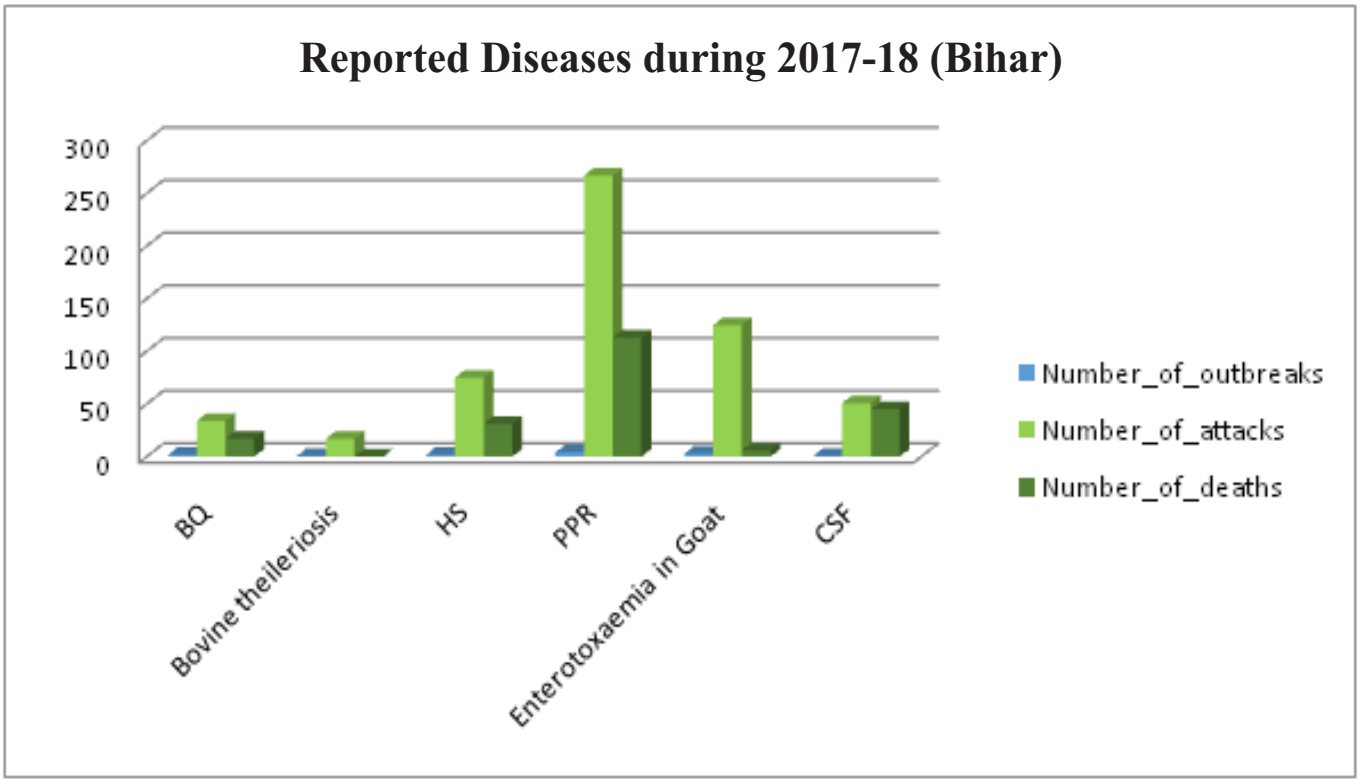
Year of start: 2005

Address	Principal Investigator	Co-Principal Investigators
AICRP-ADMAS Bihar Veterinary College, Patna-14 Bihar Animal Science University, Patna	**Dr. Pankaj Kumar** Assistant Professor Email: pankajimmunol@gmail.com	**Dr. Purushottam Kaushik** Assistant Professor, Email:drkaushikvet@gmail.com **Dr. Pallav Shekhar** Assistant Professor, Email: Shekhar.medivri@gmail.com

Fund allotted: Rs.4,25,000/-
Fund Utilized: Rs.4,40,964/-

Summary

- As per the sampling plan received from NIVEDI, a total of 600 serum samples were collected from Begusarai, Khagaria, Purnea, Katihar, Araria, Kishanganj, Madhepura, Saharsa, Supaul, Madhubani, Darbhanga, Muzaffarpur, Samastipur, Sheohar, East Champaran, West Champaran and Muzaffarpur districts covering 45 villages.
- Important livestock diseases reported during the period, 2017-18 were Theileriosis, Trypanosomiasis, Babesiosis, Anaplasmosis, Haemorrhagic septicaemia (HS), Black quarter (BQ), PPR, Enterotoxaemia and Swine fever.
- One outbreak of bovine theileriosis was reported in Bhojpur district affecting 17 animals.
- A total of two outbreaks of Haemorrhagic septicaemia were reported in which 75 animals were affected and 31 animals were died.
- A total of two outbreaks of Black quarter were reported of which 34 animals are affected and 17 animals died.
- A total of four outbreaks of PPR was recorded of which 2667 animals were affected and 113 animals died.
- A total of three outbreaks of enterotoxaemia in goats were recorded of which 125 animals well affected and 6 animals died.
- One outbreak of CSF was recorded, of which 51 animals were affected and 45 animals died.



Chattisgarh (Raipur)

Year of start: 2005

Address	Principal Investigator	Co-Principal Investigator
Disease Investigation Laboratory Animal Husbandry & Veterinary Department, Govt. of Chhattisgarh Raipur-492001	**Dr. Varsha Sharma** Incharge Disease Investigation Laboratory Email: varsha14870@gmail.com	**Dr. Aparna Patel** Email: drpatel7777@gmail. com

Fund allotted: Rs.800000
Fund Utilized: Rs.793020

Summary

- During the year 2017-18, most reported diseases were blood protozoan and endo parasitic infections apart from two outbreaks of Goat pox. In blood protozoan diseases, Babesiosis was the most reported and among endoparasitic infections, ascariasis and amphistomiosis were the most reported in the state.
- Goat pox was reported in Raipur and Rajnandgaon districts. Where in seven goats were affected and three died.
- Out of 27720 blood samples screened for blood protozoan infections, 4426 (15.9 %) were found positive. Of which, 413, 1534, 106, 326, 508 samples were positive for *Trypanosoma, Babesia*, *Theileria* & *Anaplasma* and others *(Ehrlichia spp., Piroplasms)* respectively.
- Out of 21305 faecal samples screened, 3753 (17.6 %) were found positive. Of which, 415, 1001, 133, 783, 654, 204 samples were positive for Strongyloids, *Ascaris, Toxacara,* Tapeworms, Amphistomes, *Fasciola and Coccidia* spp. respectively.
- Random screening of 2465 (0.18 %) milch animals have shown 3.1% positivity for Brucellosis. Among breedable population, 3391 (0.09 %) animals were screened and 7.8 % were found to be positive for brucellosis.
- Under PPR control program, sero-monitoring of 1727 pre vaccinated and 2698 post-vaccinated serum samples were carried out.
- Goat and sheep (n=531) serum samples were collected and sent to ICAR-NIVEDI as per the sampling plan provided by ICAR-NIVEDI.

Goa

Year of start: 2016

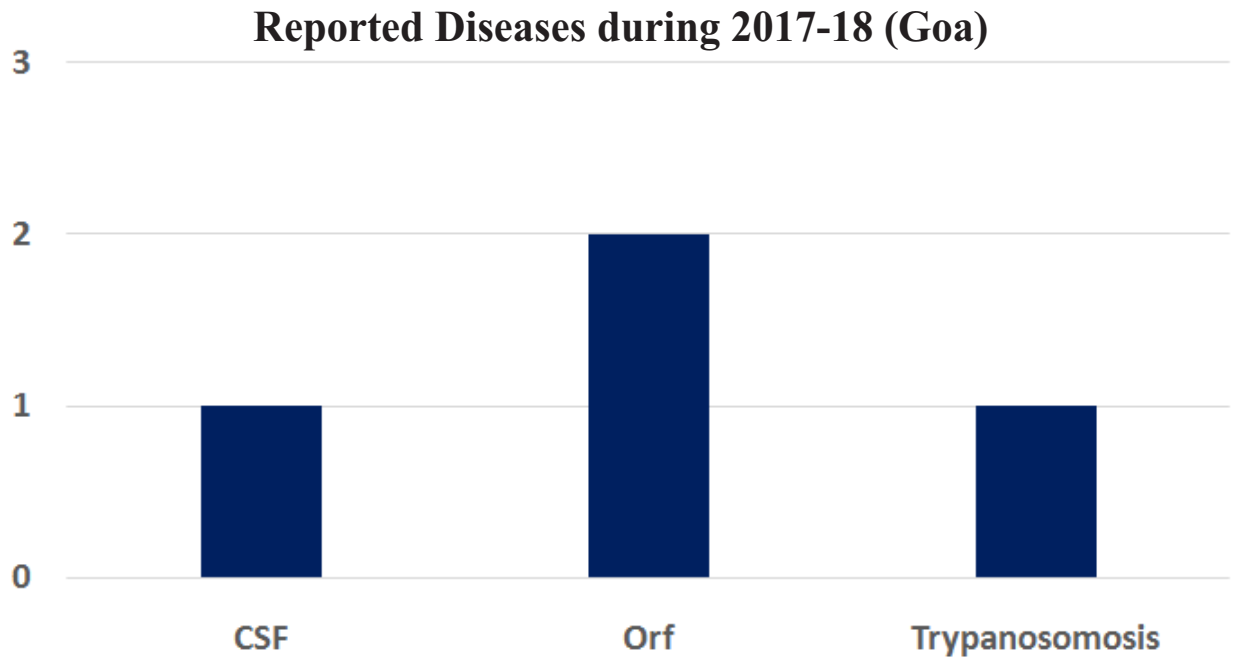
Address	Principal Investigator	Co-Principal Investigators
ICAR-Central Coastal Agricultural Research Institute, Indian Council of Agricultural Research, Ela, Old Goa – 403402, India Ph: 0832-2284678/79 Fax: 0832-2285649	**Dr. Shivasharanappa N** Email: drshivasharan@gmail.com, shivasharanappa.n@icar.gov.in	**Dr. Chethan Kumar HB** Email: chethan.kumar@icar.gov.in, chethuhb@gmail.com **Dr. Susitha Rajkumar** Email: susitha.rajkumar@icar.gov.in, susithavet@yahoo.co.in

Fund allotted: Rs.310000/-
Fund Utilized: Rs.249007/-

Summary

- During the year 2017-18, one outbreak of CSF, two outbreaks of Orf and one outbreak of Trypanosomiasis in Goa were recorded.
- Retrospective analysis of five-year disease outbreak information collected from State AH&VS dept (2011-2017) indicated that, there were three outbreaks of FMD in the year 2012, 2013 and 2014 respectively. From 2015-2017, there is no report of FMD outbreak due to regular vaccination.
- Brucellosis in dairy cattle is major problem and five-year data (2011-2017) on outbreaks indicated that, 11 outbreaks have occurred in South and North Goa. There is no calf-hood vaccination against Brucellosis in Goa which needs to be undertaken to prevent the disease
- There were no outbreaks of IBR during this year but the sero-prevalence was 19.79% (19/96) in dairy cattle during last year.
- A total of five outbreaks of Classical swine fever (CSF) in pigs was documented from 2011-2017 in organized pig farms of North Goa. During this year (2017-18), one outbreak of CSF in pigs was documented.
- Two outbreaks of Orf (ORFV) viral infection in goats were confirmed from ICAR-NIVEDI.
- Retrospective analysis of five-year disease outbreak data indicated that, there were no outbreaks of PPR, BTV and goat pox in small ruminants and despite of no regular vaccination against any of these diseases.
- A total of 317 serum samples from cattle and goats were collected from North and South Goa along with geographical coordinates and sent to ICAR-NIVEDI for sero-epidemiological investigation.

- The seroprevalence of Bluetongue (BTV) and PPR in goats carried out this year and was found that 75.20% (91/121) and 19.83% (24/121) of samples were positive.
- The sero-prevalence of Trypanosoma was reported with a prevalence rate of 93.75% (90/96) in dairy cattle from Goa. One outbreak of Trypanosomiasis during 2017 in dairy cattle was documented with 7 attacks and two deaths in North Goa.
- There were no outbreaks of blood protozoan parasites like Babesiosis, Anaplasmosis and Theileriosis during the current year.



Gujarat (Ahmedabad)

Year of start: 2000

Address	Principal Investigator	Co-Principal Investigator
Foot and Mouth Disease Typing Scheme, Hostel building, Polytechnic compound, Ambawadi, Ahmedabad-3800015 Ph: 079-26304423	**Dr. Amit Kanani** Email: amit_kanani@hotmail.com	**Dr. Nisha Shah** Email: drnisha222@gmail.com

Fund allotted: Rs.4,25,000/-
Fund Utilized: Rs.3,06,923/-

Summary

- During the year 2017-18, there were 28 outbreaks of 9 diseases including HS, FMD, PPR, Glanders, Anthrax, Rabies, CCPP, Coccidiosis and Fasciolosis in livestock and poultry. There were total 260 deaths out of 1872 attacks (See Table below).

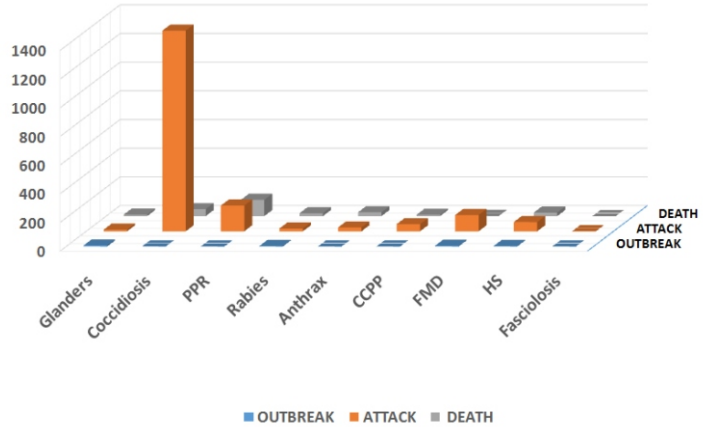
DISEASE	OUTBREAK	ATTACK	DEATH	VACCINATION
Glanders	8	12	11	0
Coccidiosis	2	1400	49	0
PPR	1	180	114	360
Rabies	4	20	20	512
Anthrax	1	27	27	2273
CCPP	1	50	10	0
FMD	6	114	2	8577
H.S.	4	65	25	9871
Fasciolosis	1	2	0	0

- Glanders in equines continues to report in 2017-18. As apart of surveillance, 8600 equine samples covering all the brick factories, farms and individual horses from all over Gujarat were screened for antibodies to *Burkholderia mallei*. All susceptible animals within 5 km radius of nuclei infection and nearly half of that in the next 5 km radius were screened.

- Out of 8600 samples tested, 78 were found positive for glanders by NRCE, Hisar. Out of the 78 cases found positive for glanders, 59 were euthanized, 7 equines went missing and 12 died due to the disease. Glanders positive animals were found in districts of Ahmedabad, Banaskatha/Palanpur, Kheda, Mehsana, Junagadh, Jamnagar, Kutch, Anand and Bhavnagar.

- Compared to previous year, in 2017-18 outbreaks of Sheep pox, buffalo pox, Avian Influenza, Foot rot and Amphistomosis were not reported in Gujarat.

Reported Diseases during 2017-18 (Gujarat)



Haryana (Hisar)

Year of start: 2015

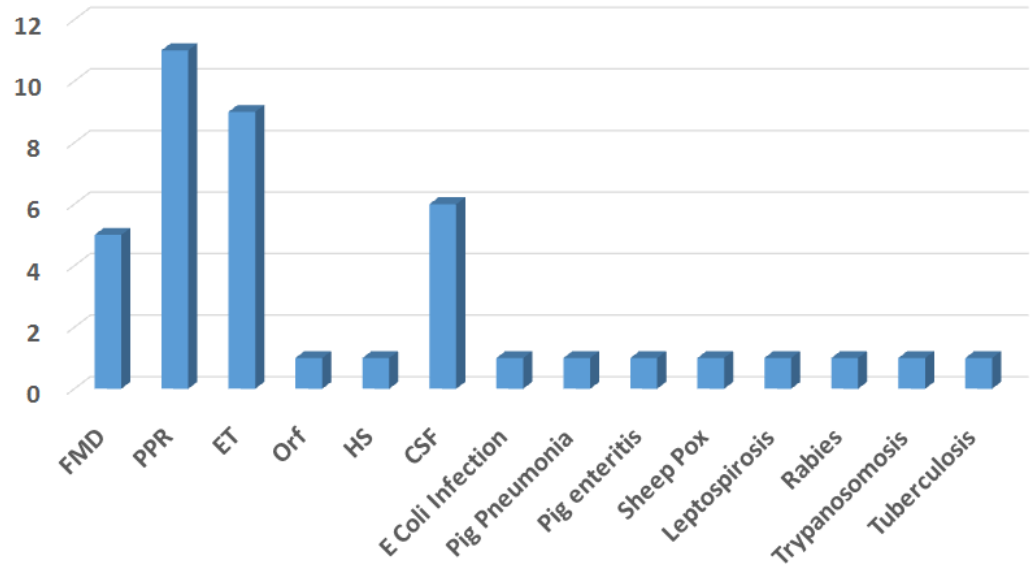
Address	Principal Investigator	Co-Principal Investigators
Veterinary Public Health and Epidemiology, Lala Lajpat Rai University of Veterinary and Animal Sciences (LUVAS), Hisar, Haryana. Phone:	**Dr. N. K. Mahajan,** Dean & Professor Email: nkmahajan15@gmail.com	**Dr. Dinesh Mittal,** Assistant Professor, **Dr. Aman Kumar,** ARO, Animal Biotechnology, LUVAS.

Fund allotted: Rs.3,75,000/-
Fund Utilized: Rs.3,47,552/-

Summary

- During 2017-18, a total of 9 disease outbreaks in cattle & buffaloes, 23 outbreaks in sheep and goat and 9 outbreaks in pigs have been investigated from various parts of the state as well as from adjoining state of Rajasthan.
- A total of 5 outbreaks of Foot and mouth disease was reported in cattle and buffaloes either alone (4 outbreaks) or in combination with HS (1 outbreak).
- Eleven outbreaks of PPR were reported (Seven alone, three along with enterotoxaemia and one with ORF) whereas, 9 outbreaks of enterotoxaemia occurred (Six alone and three along with PPR). The overall morbidity and mortality for PPR and enterotoxaemia were found to be 21.75%, 9.37% and 6.94%, 5.44%, respectively.
- Six outbreaks of classical swine fever and two outbreaks of pneumonia in pigs have been reported.
- A total of 1232 serum samples were collected from 60 villages during the year 2017-18 representing sheep (617) and goat (615). These samples were screened for brucellosis and bluetongue by ICAR-NIVEDI. Out of these samples, 342 (goat) and 246 (sheep); 105 (goat) and 102 (sheep) were found serologically positive for bluetongue and brucellosis, respectively.

Reported Diseases during 2017-18 (Haryana)



Himachal Pradesh (Shimla)

Year of start: 2015

Address	Principal Investigator	Co-Principal Investigator
The Director, Animal Husbandry, Himachal Pradesh, Pasudhan Bhawan, Boileuganj, Shimla 171005 Phone: 0177-2830089, Fax: 0177-2830170,	**Dr. Munish Batta,** Deputy Director, Email: dir-ah-hp@nic.in	**Dr. Vikram Singh Vashist.** Sr. Veterinary Officer, Email: vsvashist@gmail.com

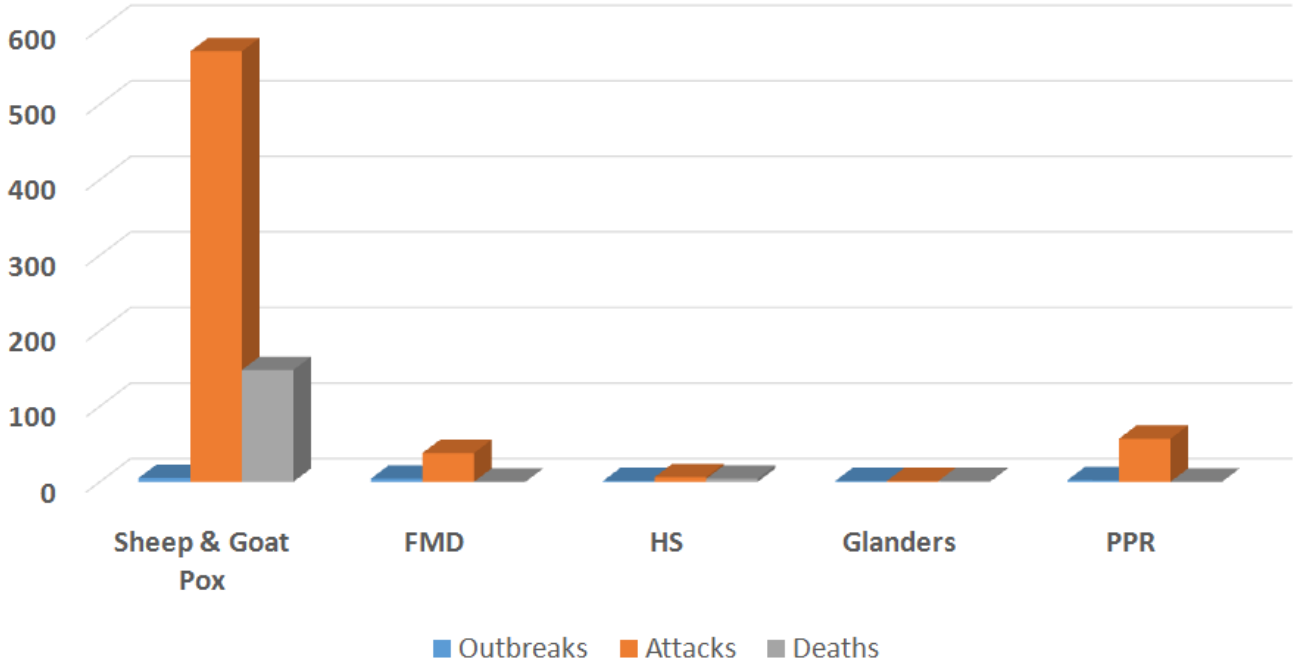
Fund allotted: Rs.4,00,000/-
Fund Utilized: Rs.4,00,000/-

Summary

- Sheep and Goat Pox, FMD, HS, Glanders were reported during the year 2017-18.
- Viral Diseases were the predominant livestock diseases during the year 2017-18.
- Five outbreaks of Sheep and Goat Pox with 570 attacks and 148 deaths were reported. Sheep Pox was the top reported disease during the year, which marked the increase in the incidence of the disease in comparison to previous years.

- Four outbreaks of FMD were reported with 38 attacks; wherein animals in four out of twelve districts were affected during the year 2017-18.
- One outbreak each of HS and Glanders was reported.
- Babesiosis, Theileriosis and Anaplasmosis were the predominant hemoprotozoan diseases, while Amphistomes and Strongyles contributed more towards GI parasitism throughout the year in most parts of the state.
- Among the 13 identified diseases under Livestock Disease Forewarning (LDF), Anthrax, BQ, Bluetongue, ET, CSF, Trypanosomiasis were not reported in the year 2017-18.
- Based on the serological studies, it was observed that prevalence of Bovine Brucellosis in the state was negligible (0.36%); however, sero prevelance of brucellosis in sheep and goat, was 9.7%. Out of the 1353 sheep and goat sera samples submitted to ICAR-NIVEDI, 45.06% were found positive for bluetongue.
- Serum samples of sheep and goat (n=1353) were collected from 60 selected villages of Himachal Pradesh and submitted to ICAR-NIVEDI as part of National Livestock Serum Repository.

Reported Diseases during 2017-18 (Himachal Pradesh)



Jammu & Kashmir (Srinagar)

Year of start: 1999

Address	Principal Investigator	Co-Principal Investigator
Animal Husbandry Department,Red Cross Road, Gowkadal, Zakura, Srinagar-190 001, Kashmir Ph: 0194-2455091 Fax: 0194-2470518	**Dr. M. Y. Chaproo** Director, AH Department Email: info@jkanimalhusbandry.in, info@jkanimalhusbandry.net drfarooqjan@gmail.com	**Dr. Tahir H. Beg** Joint Director Email: drfarooqjan@gmail.com

Fund allotted: Rs.4,00,000/-
Fund Utilized: Rs.3,08,587/-

Summary

- During the year 2017-18, no outbreak of FMD was recorded anywhere in the state. However sporadic cases of the disease were reported in of Srinagar, Anantnag Baramulla and Rajouri districts of State. As per the prevalent trends department has being conducting FMD vaccination randomly in all the (22) districts of the State, however keeping in view the incidence of the disease during last few years – "Area Specific Approach" programme has been adopted especially in endemic areas.
- During the year under report no out break of BQ disease was recorded anywhere in the state.
- During the year under report no outbreaks of HS disease were recorded in the State .
- During the year under report no outbreak of Anthrax disease was recorded anywhere in the state.
- During the year under report, 287 nos. of serum samples have been collected randomly from 26 identified villages of the state and were sent to ICAR-NIVEDI Bangalore. Out of 287 serum samples tested by Elisa, 27 samples were +ve for Brucellosis
- During the year under report, 204 nos. of sera samples have been collected randomly from identified 35 villages of the state and were sent to ICAR-NIVEDI Bangalore. Out of 204 serum 93 samples were +ve for IBR.
- During the year under report, 287 nos. of sera samples have been collected randomly from identified 24 villages of the state and were sent to ICAR-NIVEDI Bangalore. Out of 287 serum 110 samples were +ve for Trypanosoma.

- The disease Sheep & Goat Pox was endemic in Kashmir valley affecting both Sheep and Goat population of the state in Pulwama, Budgam, Anantnag, Shopian, Srinagar, Kulgam districts. During the year under report 3939 cases of Sheep & Goat Pox were reported in different districts of the valley through out the year affecting sheep and goat population of the state and causing deaths of (47) small ruminants. Maximum outbreaks have been recorded during the months of, July 2017, November 2017 January 2018, the stress associated due to heavy snowfall during the year under report could be the probable reason for increase in the No. of outbreaks.
- The disease Foot Rot affects the sheep and goat population in all the districts of the state. During the year under report (363) outbreaks of the disease were recorded affecting Sheep and Goat population of the state and causing death of (21) sheep.
- Contagious Ecythemia affected the sheep and goat population in all the districts of the state. During the year under report (37) outbreaks of the disease were recorded during all most all the months of calendar year affecting Sheep and Goat population of the state.
- During the year 2017-18, 1004 samples were sent to NCRE Hissar for Glanders testing and all were negative for Glanders
- The state has achieved phenomenal growth in poultry industry. It is natural that such an expansion has resulted in large susceptible population for various viral and bacterial diseases.
- In spite of timely prophylactic vaccination being carried out regularly the production stress on the birds make them highly vulnerable for infectious diseases.
- The Fowl cholera has been more or less brought under control by following proper schedule of vaccination manufactured by this institute and timely technical know-how provided to the poultry breeders of the state, however the recent un-usual mortality in broiler birds due to RKD has led to great set back to the poultry industry in the state.
- The investigations conducted and the laboratory findings of this institute reveal that pullorum disease (Salmonellosis) is the major problem in Kashmir division in private poultry industry which is due to poor management and in- discriminate use of medicines in poultry.
- During the year under report no outbreak of RKD or FDC has been recorded anywhere in 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. Although the mortality is negligible but the morbidity causes huge economic loss to the farmers by reducing the production capability and susceptibility to various bacterial and viral infections.

Jharkhand (Ranchi)

Year of start: 2005

Address	Principal Investigator	Co-Principal Investigator
Institute of Animal Health & Production, Kanke, Ranchi-834006 Jharkhand	**Dr. Ashok Kumar** 1/C Research Officer Email : iahp.kankeranchi@gmail.com kumarashok47429@gmail.com	**Dr. Rupa Lakra** Junior Research Officer, General Disease Section.

Fund allotted: Rs. 432034/-
Fund Utilized: Rs. 16910/-

Summary

- Important livestock diseases reported during 2017-18 were Anthrax, FMD, Swine fever, PPR, HS, BQ, some protozoal diseases such as Theilariosis, Babesiasis, Trypanosomiasis
- and Coccidiosis.
- Anthrax posses challenging threat in our state during 2017-18. Three outbreaks reported from different blocks of different districts claiming 4 deaths of animals. Action plan executed and vaccination was done in the affected areas. The affected districts were Simdega, Latehar and Ranchi. Some human casuality were also reported from these districts. A total of 11292 animals were vaccinated against Anthrax in the State during 2017-18.
- There were 2577 attacks of PPR among which 195 animals (mainly Goat) died. A total of 232198 Goats & Sheep were vaccinated under PPR-CP during the month of Apr-17 to Mar-18.
- A total of 14437 animals were affected with Trypanosomiasis out of which 226 animals died. Likewise 9537 animals found affected from Babesia out of which 52 died. 3222 animals found affected with Anaplasma out of which 29 animals died. 4518 animals reported affected from Theileria out of which 76 animals died.
- A total of 357 animals reported affected with Haemorrhagic Septicaemia out of which 4 animals reported died. Likewise 340 animals reported affected with Black Quarter out of which 1 animals died.
- For Swine Fever, 99 attacks were reported out of which 10 pigs died.
- Tracheal & cloacal swab samples (2358 nos.) for Avian Influenza Surveillance and 780 nos. of Serum sample for FMD Surveillance received from various districts of Jharkhand sent to RDDL, Kolkata.

- Due to some administrative issues the balance funds could not be fully utilized.
- PD_ADMAS Collaborating Unit at Ranchi needs continuation of the program at least for next five years because the surveillance and control activities for Anthrax & FMD are still needed keeping in mind the threat of repeated outbreak of Anthrax & FMD in some districts. Apart from it, control measures for some other diseases is also needs to be adopted.

Karnataka (Bengaluru)

Year of start: 1992

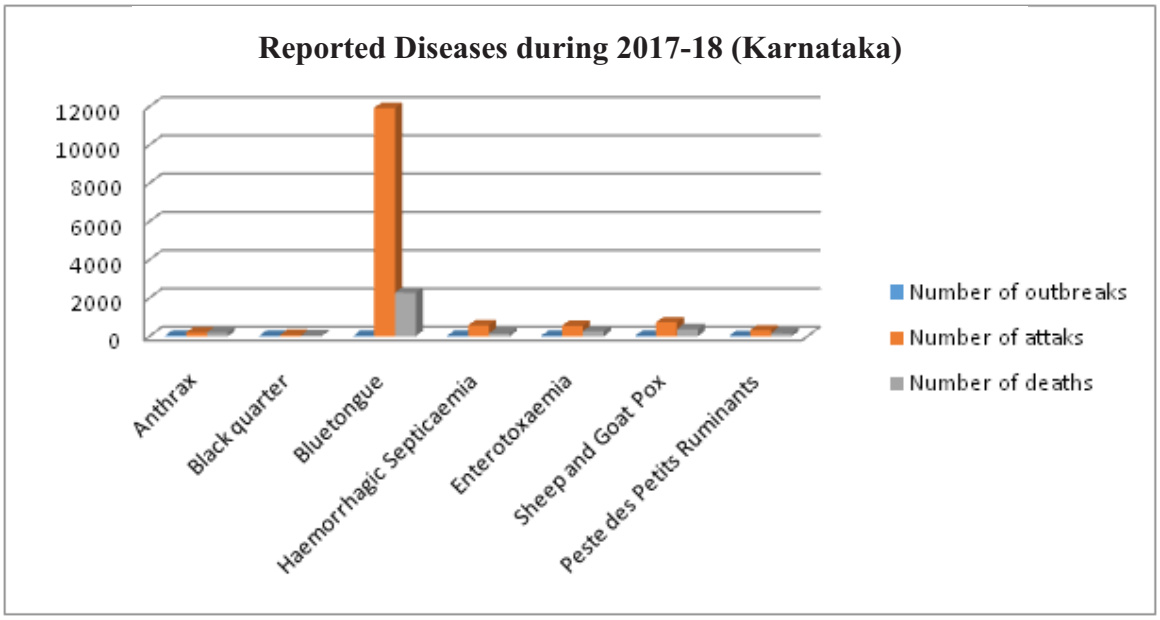
Address	Principal Investigator	Co-Principal Investigator
Institute of Animal Health and VeterinaryBiologicals, KVAFSU, Hebbal, Bengaluru 560024- Karnataka Tel.080-23411502/23414791. Fax. 080-23412367 Email: admasiahbng@gmail.com	**Dr. P. Giridhar,** Joint Director (RDI) Email: jdrdi@yahoo.com	**Dr. RaveendraHegde** Email: ravihegde63@gmail.com

Fund allotted: Rs.4,25,000/-
Fund Utilized: Rs.4,11,660/-

Summary

- During the year, 2017-18, a total of 29 incidences of Anthrax were reported in 7 districts with 194 attacks and 194 deaths affecting cattle, buffalo, sheep and goat.
- Black quarter was reported in 7 districts with 19 outbreaks, 69 attacks and 41 deaths.
- Enterotoxaemia was reported from 7 districts with 18 outbreaks, 543 attacks and 253 deaths.
- A total of 23 outbreaks of Haemorrhagic septicaemia were reported in 9 districts with 562 attacks and 146 deaths affecting cattle, buffalo, sheep and goat.
- A total of 9 outbreaks of PPR were reported in 8 districts with 299 attacks and 149 deaths affecting sheep and goat.
- Eighteen outbreaks of Sheep and goat pox were reported in 7 districts with 719 attacks and 362 deaths.
- A total of 16 outbreaks of Bluetongue were reported from 8 districts with 11924 attacks and 2272 deaths.

- During the year 2017-18, 1320 serum samples were collected and submitted to the National Serum Bank, ICAR- National Institute of Veterinary Epidemiology and Disease Informatics (ICAR-NIVEDI).
- Out of 7,691blood smears examined, 1969 (25.7%), 97 (1.26%), 65 (0.85%), 169 (2.21%) blood smears were positive for Theileria, Babesia, Trypanosome and Anaplasma respectively.
- Out of 3,786 fecal samples examined, 261 (6.89%), 33 (0.87%), 199 (5.2%), 118 (3.11%), 132 (3.48%) were positive for Strongyle, Amphistomes, Coccidia, Tapeworm and Fasciola respectively.
- The economic loss due to major livestock diseases during the year 2017-18 in Karnataka is estimated as Rs. 1791.91 lakhs



Kerala (Palode)

Year of start: 2005

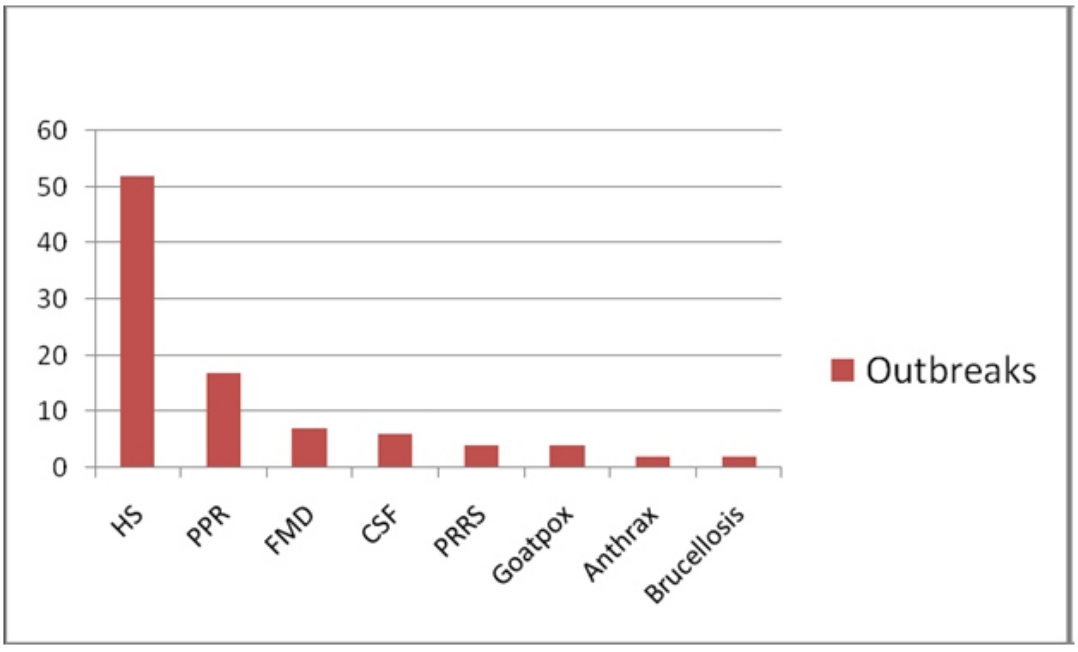
Address	Principal Investigator	Co-Principal Investigator
Center for Disease Investigation office, Palode, Pacha P.O., Thiruvananthapuram- 695 562 Ph: 0472-2840252 Fax: 0472-2840743	**Dr. Swapna Susan Abraham,** Email:cdio.ahd@kerala.gov.in, swapnasusan2003@yahoo.co.in	**Dr. Asha T.T** Ph: 9447905360 Email: ttashapradeep@gmail.com

Fund allotted: Rs.4,25,000/-
Fund Utilized: Rs.4,25,000/-

Summary

- A total of 94 Disease Outbreaks were reported during the year, 2017-18.
- HS (52), PPR (17), FMD (7), CSF (6), PRRS (4), Goat pox(4), Anthrax (2),Brucellosis (2) and Rabies occupied the top positions.
- As in the previous year, HS was the top reported disease in the year. Number of outbreaks, attack rate and case fatality were increased. The district "Thrissur" has been reporting maximum number of outbreaks continuously for the last five years. Northern Kerala was comparatively free from the disease.
- PPR was the top reported viral disease in the state. An increasing trend is observed in five year analysis.
- PRRS in pgs and Goat pox in goats were also reported as continuation of previous year's outbreaks. However naïve areas were involved in the year.
- CSF was reported from four districts. The district "Idukki" was identified as the hotspot of the disease on long term spatial analysis.
- As part of active surveillance, parasitic profiling of livestock of the state was conducted.
- Blood parasitic infestations like Theileriosis, Anaplasmosis and Babesiosis were reported throughout the year and almost throughout the state as sporadic cases.
- Sero surveillance for Brucellosis (1.5%), JD (3.1%), CCPP (0%), IBR (23.5%), PRRS(0) and BVD (70%) were conducted.
- Sera samples of 660 goat samples were collected from selected 60 villages of the state and submitted to ICAR-NIVEDI as part of National Livestock Serum Repository.
- The centre ensured 100 % budget utilization during year.

Reported Diseases during 2017-18 (Kerala)



Madhya Pradesh (Bhopal)

Year of start: 1999

Address	Principal Investigator	Co-Principal Investigator
State Animal Disease Investigation Laboratory, Veterinary Hospital Campus, Jahangirabad, Bhopal-462 008 Ph: 0755-2767583 Fax: 0755-2767583	**Dr. S K Parnam** Joint Director Email: drparnam@gmail.com statedilab07@rediffmail.com	**Dr. Jayant Tapase** Adl Deputy Director Email: jstatedilab07@rediffmail.com, jstapase07@gmail.com

Fund allotted: Rs.4,25,000/-
Fund Utilized: Rs.4,25,000/-

Summary

- The State Animal Disease Investigation Laboratory RAK Campus, Jahangirabad, Bhopal, is a collaborating unit of AICRP on ADMAS Bengaluru.
- 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 18 disease outbreaks ie. 12 Haemorrhagic Septicaemia, 02 Black quarter and 03 Glanders outbreaks in the year 2017-18. The outbreaks and incidences of various diseases were analysed and correlated with seasons, agro climatic zones, meteorological parameters etc.
- In the year 2017-18, no outbreak of FMD was reported from the state. Under FMD control Programme a total of 20360 Pre & Post vaccinated serum samples were collected for Sero_monitoring study. In DIVA Sero-monitoring total 10180 samples were tested which shows 18.2% prevalence of 3AB3 viral protein.
- In the year 2017-18 no outbreak of PPR has been reported in the state due to PPR Control programme. The Sero-monitoring under PPR control programme were conducted in 313 villages from 51 districts and the post vaccinated results shows 58% animals were found Sero-positive for this disease.
- The Serosurveillance study of IBR for last 7 year show that, out of total 3493 samples,1324 samples (38%) have been found Sero-positive for IBR and the result shows that Buffaloes were less (29%) susceptible as compare to Cattle (41%).

- In the year 2017-18 no outbreak of Swine Fever has been reported in the state. Sero-surveillance study from the year 2011-12 to 2017-18, shows 34% sero-prevalence of Classical Swine Fever disease in 67 villages.
- The clinical evidence of Bluetongue disease is not reported/confirmed in
- The state so far however, the Sero-surveillance study shows high prevalence (63%) of disease in Sheep & Goat of the state.
- A total 12 outbreaks of HS were reported from 07 districts of the State. Betul district had maximum 4 outbreaks followed by Indore and Dindori districts.
- In this year 02 outbreaks were reported from Betul & Chhindwara districts each.
- In the year 2017-18, 4 outbreaks of Glanders were reported in Rajgarh, Indore, Khandwa and Narsinghpur districts in the State. The disease has been controlled following the GOI infectious and contagious diseases act 2009. No mortality has been reported thereafter in equines due to Glanders. Clinical surveillance /Sero-surveillance is being followed in the outbreak area as per GOI norms.
- In the Year 2017-18, 111 (1.81%) samples out of total 6134 samples were found positive for Brucellosis when tested by RBPT. Similarly 84 (0.82%) samples out of total 10248 pooled milk samples were found positive for Brucellosis when tested by MRT.
- Out of total 62311 samples tested 2872 (4.60%) samples were found positive for Babesiosis in districts. Incidence of Babesiosis is high 8.51% in others species as compared to 4.29% in Buffaloes and 3.26% in Cattle.The disease is reported throughout the year with high incidences in March and September months.
- Out of total 26285 samples tested 1253(4.77%)samples of Cattle & Buffalo were found +Ve for Theilerosis disease. Incidences in Cattle is high 4.88% as compared to Buffalo 4.60%. Maximum no of incidences were reported in October, March and January months. The disease were reported throughout the year.
- Out of total 46038 samples tested 1142 (2.48%) of samples were found positive for Trypanosomosis. As reported the incidences in Buffalo is high 4.11% as compared to Cattle 1.96%. Maximum number of incidences were reported in March, December & February months.
- Out of total 40774 samples tested 1077(2.65%) of samples were found positive for Anaplasmosis. As reported the incidences in Buffalo is high 3.48% as compared to Cattle 2.93%.Maximum no of incidences were reported in August, February & March months.
- Out of total 82824 samples tested, 2688(3.25%) samples were found +Ve for Amphistome infection. The Amphistome infection is reported throughout the year. Maximum no of +Ve cases were reported in January, February and March months.

- Out of total 104558 samples tested 3169(3.00%)samples were found Positive for Fasciola infection Buffaloes were highly susceptible to this infection; it was reported 3.66%in Buffaloes as compared to 2.96% in Cattle. The Fasciola infection is reported throughout the year. Maximum 348 no of +Ve cases were reported in month of August followed by September and March months.
- Out of total 48439 samples tested,645 (1.34%) samples were found +Ve for Schistosoma infestation. The incidences in Cattle were high 1.63% as compared to 1.14% in Buffalo.The disease is reported throughout the year. The seasonal pattern of the disease revealed maximum 136 no of +Ve cases in August month followed by July and September months.
- Sero-surveillance of Equine diseases from the year 2005 to 2017
- Show 31% seroprevalence of Babesiosis infection in Equine population in the State.
- In the Year 2017-18, Poultry diseases like Ranikhet, CRD, IBD, *E.coli*, Pox,
- Marek's and Coccidiosis were reported on the basis of necropsy lesions.
- At SADIL Bhopal the Faecal sample examination shows presence of Toxocara, infection in carnivores and herbivorous animals. The Histopathological examination of the viscera of Tiger, Lion, Panther and Sloth Bear revealed Myocardidtis, Nephritis, and Hepatitis condition.
- Under ADMAS Random Village Sero-surveillance Programme 777 serum samples, were collected from 65 randomly selected villages and these samples were sent to ICAR-NIVEDI Bengaluru in November 2017.
- Economic Analysis; The economic losses due to important Bacterial,Viral, Protozoan and Parasitic diseases are calculated to know the economic impact of these diseases to the farmers/communities in the State. In this year the average economic losses due to Bacterial & Viral diseases are Rs 22,32,700 and average economic losses due to Protozoan & Parasitic diseases are Rs 4,70,57200.

Maharashtra (Pune)

Year of start: 1987

Address	Principal Investigator	Co-Principal Investigator
Disease Investigation Section (D.I.S), Western Regional Disease Diagnostic Laboratory, Aundh,Pune-411 067 Ph: 020-25692135 Fax: 020-25691474 Email: dis.pune7@gmail.com, drsbtrao@gmail.com	**Dr. S. B. Tatavarthy** Joint Commissioner of Animal Husbandry dis.pune7@gmail.com, drsbtrao@gmail.com	**Dr. P. R. Mahajan** Dy.Commissioner of Animal Husbandry,(Surveillance) Email: drsns27@ymail.com

Fund allotted: Rs.4,25,000/-
Fund Utilized: Rs.3,19,000/-

Summary

- In Maharashtra, 17 livestock disease outbreaks were reported under bacterial diseases category. Total 10 outbreaks are reported under viral diseases category.
- A total of 27 livestock disease outbreaks were reported in the state during the period under report. When disease outbreaks are classified according to the animal species, it was observed that the large ruminants experienced only 4 outbreaks (02 outbreaks of Botulism-Diagnosed from clinical signs & 02 outbreaks of B Q) of bacterial diseases..
- In small ruminants, total 15 outbreaks (05 from bacterial origin and 10 from viral origin) were observed viz; 05- Haemorrghic Septicaemia, 09-PPR, & 1- Sheep Pox.
- Out of 110 serum samples from sheep and 119 serum samples from goat collected randomly and tested for brucellosis 5 (4.5 %) and 6 (5.0 %) found positive respectively. Out of 229 samples only 11 samples found positive i.e. 4.8 %.
- Out of 27 disease outbreaks reported during 2017-18, 05 are epidemiologically investigated. Outbreak of H S resulted due to the non-vaccination of susceptible population. From history taken occurance of sheep pox found to be due to introduction of a sheep kid from other place i.e Mumbai in the flock. The source of infection of glanders remained untraceable due to movement of animals without any record.

- Actions were timely performed and it includes post outbreak vaccination, treatment, isolation and disinfection in cases of outbreaks of H S and sheep pox. In the cases of glanders detected and confirmed the animals were Euthenised by laid down procedure of Euthensia. The following inferences were drawn by the surveillance team during their active surveillance, which are reported as follows.
- 1. The quarantine measures were not followed strictly.
- 2. Vaccinations of the supplied animals are not followed compulsorily.
- 3. Immediate change in the environment and the conditions was to be considered and acted.
- 4. Change in the rearing system may be one of the reasons.

Manipur (Imphal)

Year of start: 2005

Address	Principal Investigator	Co-Principal Investigator
Disease Investigation Laboratory, Directorate of Veterinary & AH Services, Imphal-795001 Manipur. Ph: 0385-2447009	**Dr. Ng. Ibotombi Singh,** Email: ibotombi7@gmail.com	**Dr. Mrs. S. Binodkumari Devi** Email:drbinodkumaridevi@gmail.com

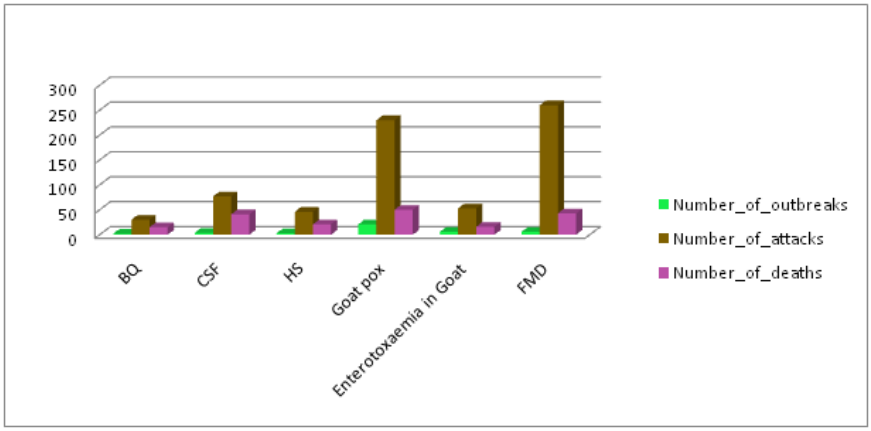
Fund allotted: Rs.3,75,000/-
Fund Utilized: Rs.3,75,000/-

Summary

- Six FMD outbreaks were recorded and attended by the Unit at Temenglong District, Manipur during the year, 2017-18 caused by FMD "O" Serotype.
- A total of 2 outbreaks of Black Quarter were recorded during 2017-18; one at Senapati and another at Churachandpur district in Manipur.
- There were 3 sporadic outbreaks of Haemorrhagic Septicaemia recorded and attended by the unit at 3 districts of Senapati, Ukhrul and Bishnupur in which there were 46 attacks and 21 deaths.
- There were 4 outbreaks of Classical Swine Fever in pigs with 77 attacks and 41 deaths. Decreasing trend in disease outbreaks as compared to previous years was noticed.
- Two outbreaks of Goat Pox were also recorded and confirmed by the Centre in Senapati and Thoubal districts where in there were 33 attacks and 8 deaths.

- A total of 759 sera samples were sent to ICAR-NIVEDI. The prevalence rate of the brucellosis was only 2.7% in Goat and Sheep (21/759) during the year, 2017-18.
- Sero-surveillance of Bluetongue in Sheep and Goat was also taken up in collaboration with ICAR-NIVEDI, Bengaluru. The prevalence rate of the disease in goat was 61.3% and in sheep was 44.6%.
- There were 9 positive cases of Babesiosis in cattle, Manipuri Pony and dogs in Imphal-East, Imphal-West, Thoubal, Bishnupur and Churachandpur districts of the state.
- Altogether, 3256 livestock faecal samples were examined as routine examination to detect parasitic load in these animals.
- All the 120 porcine sera samples sent to in pigs ICAR-NEH Region, Barapani, Meghalaya for sero-Surveillance of PRRS were found negative.
- Surveillance of Bovine TB and Johnes disease was conducted by PPD intra-dermal test at different parts of the state and only one Bovine TB case was detected out of the 242 animals and none were found positive for Johnes disease.
- During the year, cases of canine Rabies were not reported, which indicated the success of massive vaccination coverage during the previous and current year in Manipur. Canine Distemper and Canine Parvo virus infection were also confirmed using CD & Canine Parvo ELISA kits.
- A total of 18 cases of fasciolosis and 413 cases of amphistomosis in cattle and buffalo were detected by routine faecal sample examination of 1007 samples.
- Outbreaks of major poultry diseases like RD, IBD, mixed infections with Colibacillosis, Coccidiosis etc, Fowl Pox, Salmonellosis/Pullorum Disease, Coccidiosis and BWD etc. were recorded in the state during 2017-18.
- Trainings of Vets, Paravets working at District Disease Investigation Laboratories were also conducted by the unit for collection, preservation and dispatch of clinical Samples and efficient animal disease diagnosis. Staff of three Field District Laboratories viz., Senapati, Chandel and Churachandpur were trained for various Laboratory Techniques.

Reported Diseases during 2017-18 (Manipur)



Meghalaya (Barapani)

Year of start: 2011

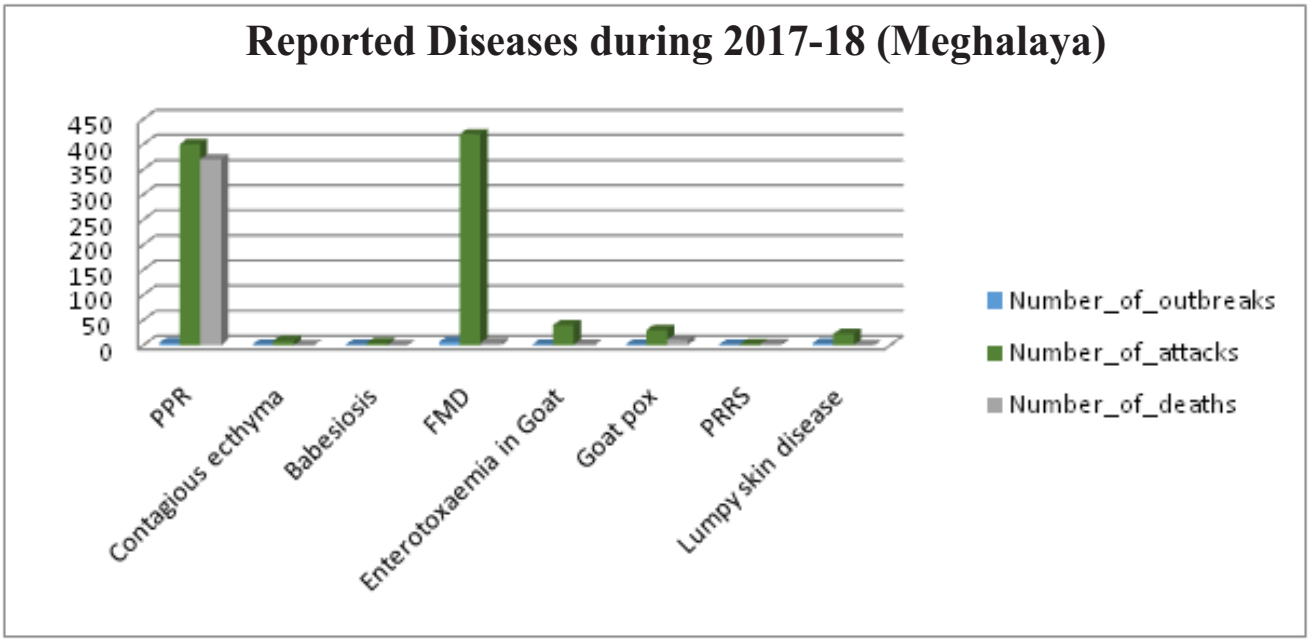
Address	Principal Investigator	Co-Principal Investigators
Division of Animal Health, ICAR Research Complex For NEH Region, Umiam, Meghalaya - 793103. Ph. 0364-2570071 Fax: 0364-2570071	**Dr. Samir Das** E-Mail :drsamirvph@yahoo.com	**1) Dr. Arnab Sen** E-mail: arnabsen123@gmail.com **2) Dr. I Shakuntala** E-mail- ishakuntala92@gmail.com **3) Dr. Sandeep Ghatak** E-mail: ghataksnd@rediffmail.com **4) Dr. Rajkumari Sanjukta** E-mail : rajkumari.sanjukta@gmail.com **5) Dr. K. Puro** E-Mail :akulepuro@rediffmail.com **6) Dr. A. A. P. Milton** E-mail: vetmilton@gmail.com

Fund allotted: Rs.4,00,000/-
Fund Utilized: Rs.3,99,895/-

Summary

- In Meghalaya, the livestock diseases reported during the year 2017-18, were Foot and Mouth Disease (4 outbreaks & 1590 cases) Black Quarter (301 cases), Swine FMD (102 cases), Haemorrhagic septicaemia (91 cases) and Classical Swine fever (82 cases). In addition one outbreak of Anthrax in bovine was also reported in East Khasi Hills.
- In disease outbreak investigations, 5 outbreaks of bovine FMD, 1 outbreak of swine FMD, 4 outbreaks of Peste des petits ruminants (PPR) and 1 outbreak each of goat pox and contagious ecthyma in goat, 1 outbreak of bovine babesiosis and a case of enterotoxemia in caprine, 2 cases Porcine Reproductive & Respiratory Syndrome (PRRS) in swine, 3 cases of Lumpy skin disease i.e., 2 in caprine and 1 in bubaline were investigated.
- The economic analysis of these major disease outbreaks revealed a loss of Rs 54,47,400 in Bovine FMD, Rs 3082800 in PPR, Rs 136400 in Goatpox , Rs 688700 in swine FMD with an overall economic loss of Rs 9355300.
- Sero-surveillance of important livestock diseases namely Brucellosis, PPR, Bovine Viral Diarrhoea (BVD), Infectious Bovine Rhinotracheitis (IBR), PRRS, CSF and Bluetongue was carried out and the result revealed the presence of sero-positive animals.
- Amongst the GI parasites of goats, cattle and pigs of this region, *Strongyloides* spp., Strongyles spp., *Eimeria* spp. were commonly encountered.

- A total of 660 caprine sera samples were collected from 60 allotted epi units and were dispatched to ICAR-NIVEDI, Bengaluru for strengthening national livestock sera repository.
- The source and supply of vaccination of swine diseases in Meghalaya and the risks factor of PRRS in North Eastern Region were studied as per the recommendations of the XXV Annual Review meet of AICRP on ADMAS.



Mizoram (Aizawl)

Year of start: 2015

Address	Principal Investigator	Co-Principal Investigators
Disease Investigation Wing, Directorate of Animal Husbandry & Veterinary, Government of Mizoram, Khatla, Aizawl-796001 Fax: 0389-2333234	**Dr. Esther Lalzoliani** VO (DI) Email: esralte185@yahoo.com	**1.Dr. Tapan Dutta** Associate professor, Email: tapandutta@rediffmail.com tapandutta72@yahoo.com **2.Dr. C. Neihthangpuii** VO (H&D) Email: puiihualngo@gmail.com

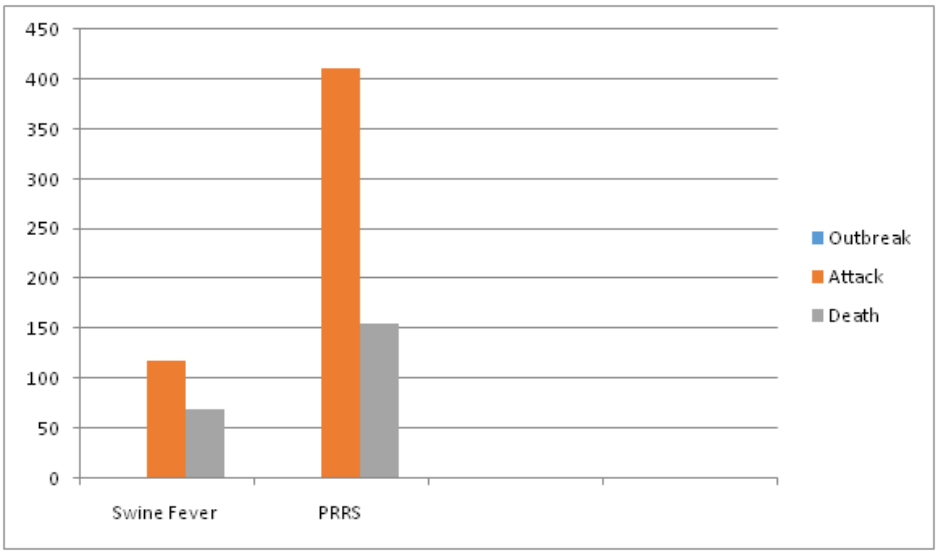
Fund allotted: Rs.4,00,000/-

Fund Utilized: Rs.4,49,472/- (Excess Rs.49,472 spent under Contingencies from Bank Interest Rs.26,374 and unspent balance 2016-17 Rs.27350)

Summary

- During the year 2017-18, two outbreaks each of CSF and Porcine Reproductive and Respiratory Syndrome (PRRS) were reported in the state.
- The two outbreaks of CSF in Champhai district in the month of May and June 2017 caused mortality of 118 and 69 pigs respectively.
- Outbreaks of PRRS in 2 districts of the state occurred in the month of March 2018 affecting 411 pigs causing 156 deaths.
- Goat (n=649) and sheep (n=40) serum samples were collected and sent to NIVEDI as per the sampling plan provided by ICAR-NIVEDI. In addition, 5 nos of pig tissue samples were also submitted to NIVEDI.
- Training of Vets, paravets and livestock farmers and Awareness Campaign for general public were also conducted by the Center in collaboration with District AH & Vety Officers at different places of the state.

Reported Diseases during 2017-18 (Mizoram)



Nagaland (Kohima)

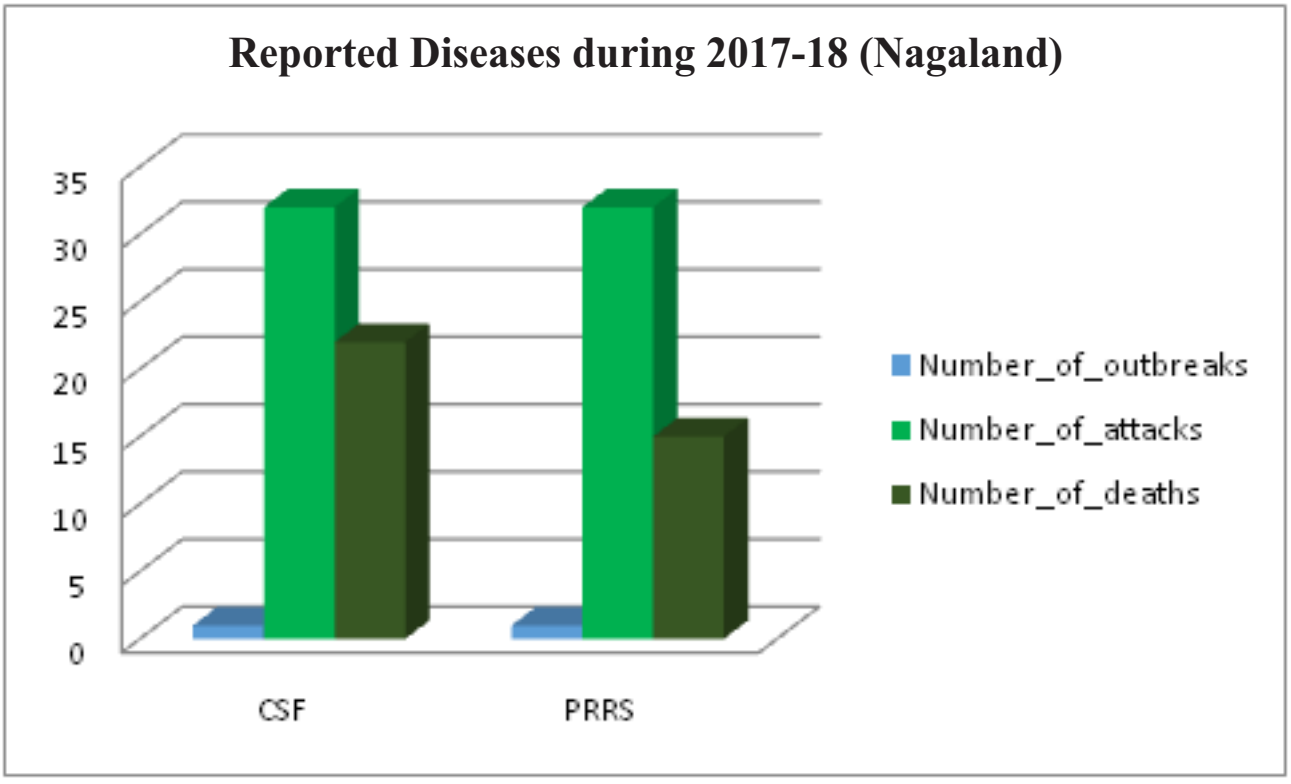
Year of start: 2015

Address	Principal Investigator	Co-Principal Investigator
Animal Husbandry & Veterinary Department, Government of Nagaland, Kohima -797001 Fax: 0370-2221704	**Dr. S. Amenla Walling** Email: amenlaw2@gmail.com	**Dr. Vikuolie Mezhatsu** Email: vikuovet@gmail.com

Fund allotted: Rs.5,15,000/-
Fund Utilized: Rs.5,15,000/-

Summary

- The Nagaland state has 1.29 lakhs crossbred cattle, 1.06 lakhs indigenous cattle, 3.81 lakhs crossbred pig, 1.23 lakhs indigenous pig, 0.33 lakhs buffalo, 0.04 lakhs sheep and 0.99 lakhs goat populations as per the Livestock Census 2012.
- During the period under report, (excluding FMD and Poultry diseases) one outbreak each of Porcine Reproductive and Respiratory Syndrome (PRRS) and Classical Swine Fever was reported in Kohima district.
- One outbreak of Classical Swine Fever was recorded in Kohima district. Out of 240 susceptible animals, 32 pigs were attacked and 22 pigs died and 160 pigs were vaccinated against swine fever. Diagnosis was done basing on PM findings and confirmation by laboratory test.
- One outbreak of PRRS disease in swine was recorded in Kohima district. Out of 1600 susceptible animals, 32 pigs were attacked and 15 pigs died. Diagnosis was done basing on PM findings and confirmation by laboratory test. During the reporting year no vaccination was done against PRRS.
- The economic loss resulting from treatment and death of animals from PRRS and CSF diseases outbreak during 2017-18 is estimated as Rs. 4.92 lakhs
- A total 726 serum samples (660 goat and 66 sheep serum samples) were collected from 10 districts of Nagaland as per AICRP sampling plan 2017-18 and submitted to ICAR-NIVEDI for sero-surveillance.



Odisha (Cuttack)

Year of start: 1999

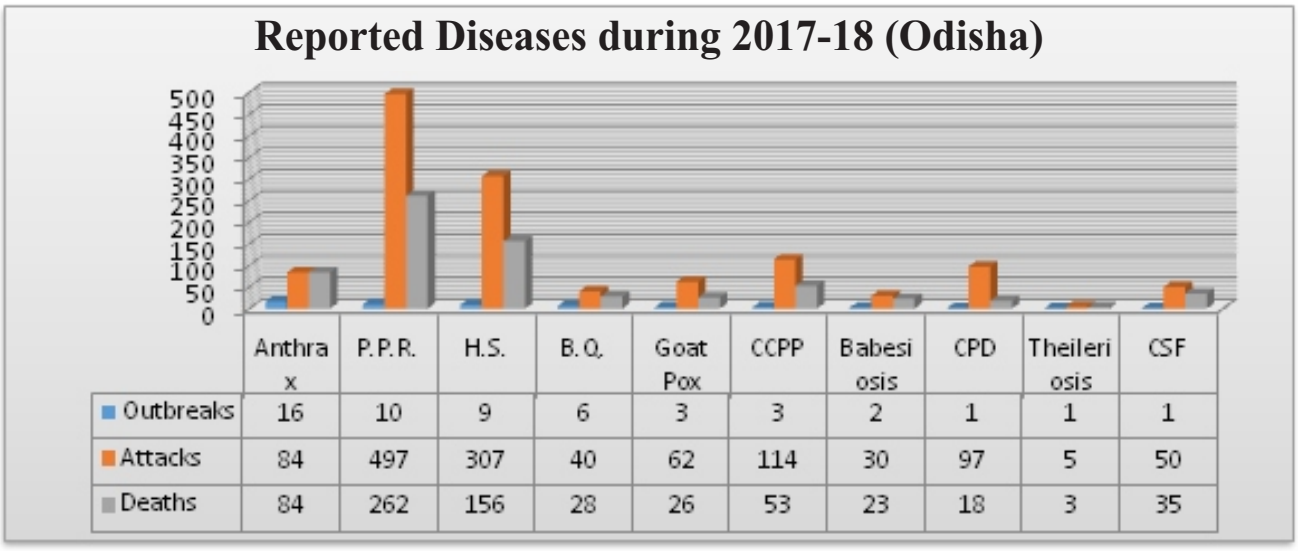
Address	Principal Investigator	Co-Principal Investigator
Animal Disease Research Institute, Phulnakhara, Cuttack- 754 001, Odisha Ph : 0671-2356103 Fax. No : 0671-2356103	**Dr. Gopal Charan Bal** Ph: 06712356130 Email: drgopalbal@gmail.com	**Dr. Subhashis Misra** Email: subhashis.misra1806@gmail.com

Fund allotted: Rs.4,50,000/-
Fund Utilized: Rs.4,28,564/-

Summary/Achievements:

- During 2017-18, a total of 52 outbreaks were investigated. Anthrax (16), H.S. (9), B.Q (6), PPR (10), Goat pox (3), CCPP (3), Babesiosis (2), Theileriosis (1), CPD (1) and Classical Swine Fever (1). Compared to the previous year, there was reduction in total number of outbreaks due to high vaccination coverage.
- A total of 16 Anthrax outbreaks were encountered in 5 districts. Outbreaks were recorded in April, May, June, July, November, January, February and March with highest number of outbreaks in June (6).
- A total of 6 BQ outbreaks were investigated in 4 districts of the state, in which 40 cattle are affected and 28 died. Outbreaks were recorded in the month of April, October and November.
- A total of 9 outbreaks of HS affecting 307 cattle, buffalo and goats were recorded in 7 districts of the state. The outbreaks were recorded in August, September, October and February.
- A total of 10 nos. of PPR outbreaks were recorded in sheep and goats in 4 districts of affecting 497 animals, of which 262 animals died. Outbreaks were recorded in the month of May, August, October, January, February & March. Highest numbers of outbreaks were recorded in the months of October & March (3 OBS).
- Three outbreaks of Goat pox were recorded in 3 districts affecting 62 animals causing 26 deaths in the month of April, June and August.
- Three outbreaks of CCPP were recorded in 2 districts affecting 114 animals causing 53 deaths in the month of August, October and December.
- One outbreak of Classical Swine Fever occurred in Malkangiri district in the month of August affecting 50 pigs causing 35 deaths.

- One outbreak of CPD occurred in Sundargarh district in the month of August affecting 97 goats, in which 18 animals died.
- Blood protozoan parasitic infections viz., Babesiosis, Theileiriosis and Trypanosomosis were reported throughout the year in the entire state.
- Out of 2,38,615 faecal samples examined, 44,941 samples were found positive for Fasciola ova and 75,038 samples were found positive for Amphistome ova.
- A total of 1311 sera samples of Sheep (637) and Goat (674) were collected from 60 selected villages and submitted to NIVEDI as part of National Livestock serum Repository.



	Anthrax	P.P.R.	H.S.	B.Q.	Goat Pox	CCPP	Babesiosis	CPD	Theileriosis	CSF
Outbreaks	16	10	9	6	3	3	2	1	1	1
Attacks	84	497	307	40	62	114	30	97	5	50
Deaths	84	262	156	28	26	53	23	18	3	35

Puducherry

Year of start: 2015

Address	Principal Investigator	Co-Principal Investigator
Department of Animal Husbandry and Animal Welfare, Government of Puducherry, Maraimalai Adigal Salai, Puducherry-605001 Phone:(0413)206888/(0) 9443539056, Fax:0413-2206890	**DR. R. Mariya** Email:ahd.pon@nic.in, Mariamaria14@rediffmail.com	**DR. M. Mohan** Email: mohanpsp@yahoo.co.in

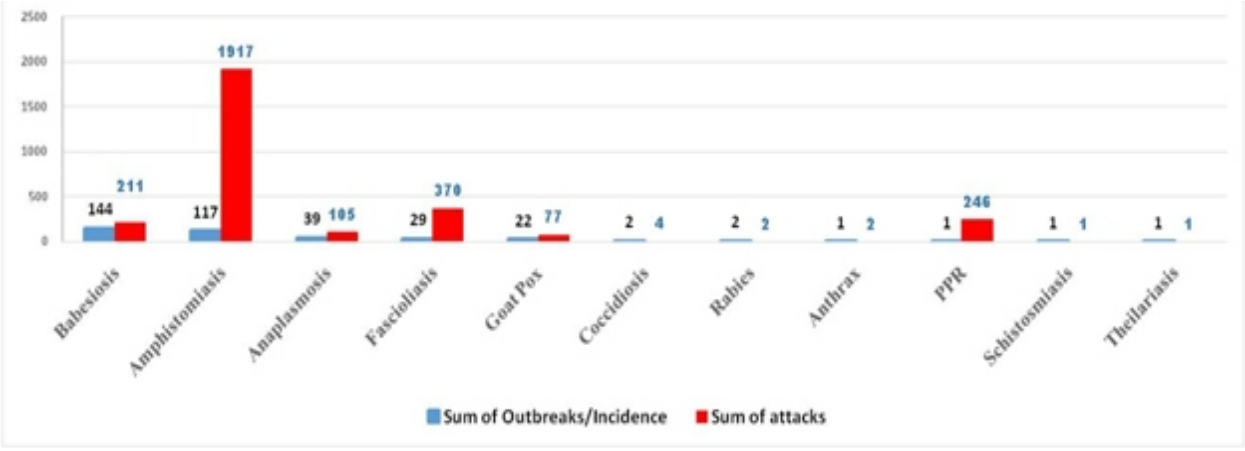
Fund allotted: Rs.3,14,521/-

Fund Utilized: Rs.1,32,336/-

Summary

- The data on major livestock diseases reported in the Union Territory of Puducherry for the year 2017-18 was analyzed and top diseases reported from this U.T. were parasitic diseases (88.86%), followed by viral (11.07%) and bacterial (0.07 %) diseases.
- The major livestock diseases reported from Puducherry in 2017-18 were Goat Pox and PPR
- There was 1 outbreak of PPR in goats in Thirukanur, Mannadipet commune, Pondicherry district in June 2017 with 246 attacks and 38 deaths.
- A total of 22 outbreaks of Goat Pox have been recorded throughout the year with 77 attacks in Nedungadu and TR pattinam communes of Karaikal district.
- There was 1 report of anthrax in bovine in Thirukanur, Mannadipet commune, Pondicherry district in December 2017 with 2 attacks and 1 death
- Two cases of rabies in bovine were reported in Thirukanur, Mannadipet commune of Pondicherry district in May 2017.
- Babesiosis was the highest reported parasitic disease followed by Amphistomiasis, Fascioliasis, Anaplasmosis, Theileriosis and Trypanosomiasis.
- Babesiosis was reported throughout the year in bovine and small ruminants (144 reports with 211 attacks and 2 deaths) from Puducherry and Karaikal districts.

Reported diseases during 2017-18 (Puducherry)



Punjab (Ludhiana)

Year of start: 1992

Address	Principal Investigator	Co-Principal Investigators
Animal Disease Research Centre, Guru Angad Dev Veterinary and Animal Sciences University, Ludhiana-141004, Punjab Phone: 0161-2414030 Fax: 0161-2400822	**Dr. Kulbir Singh Sandhu** E-mail: kssandhu60@hotmail.com	**Dr. G. Filia** Senior Scientist, E-mail: harpalfilia@rediffmail.com **Dr. Mohinder Pal** Joint Director, Regional Disease Diagnostic Laboratory (North Zone), Ladowali Road, Jalandhar-144001, Punjab Phone: 0181-2242335, E-mail: mp12398@yahoo.com

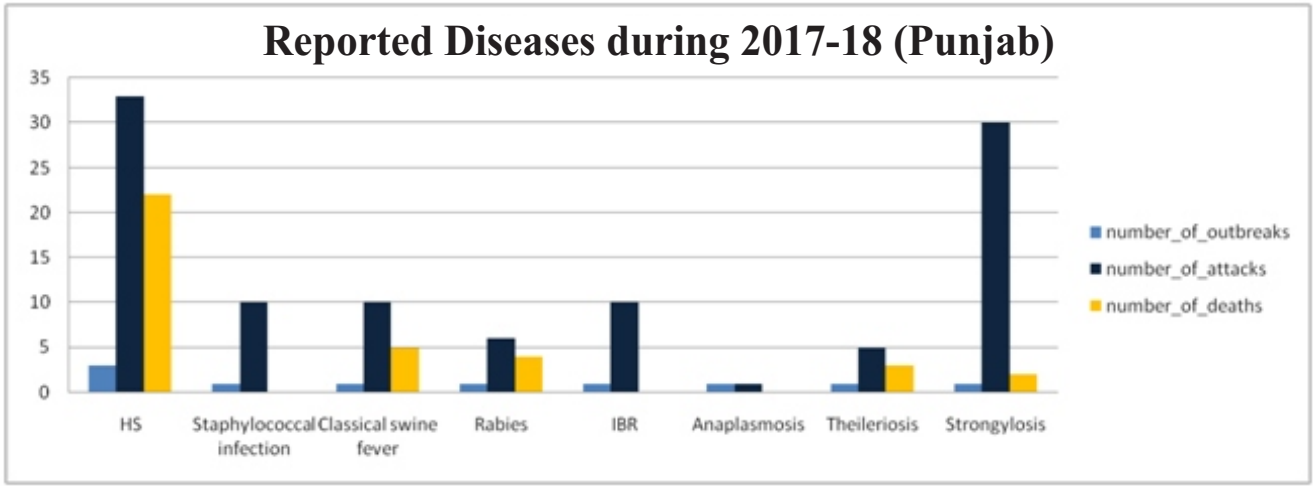
Fund allotted: Rs.3,75,000/-
Fund Utilized: Rs.3,73,747/-

Summary

- Active surveillance was conducted in 60 villages of different districts of Punjab state, wherein 956 sera samples (351sheep and 605 goat) were collected and screened for various livestock diseases.
- Twenty outbreaks of various infectious diseases and toxicities viz. Haemorrhagic Septicemia (3), Staphylococcal infection (1), Classical Swine Fever (1), Pneumonia (2), Swine pox (1), Rabies (1), IBR abortion (1), Anaplasmosis (1), Theileriosis (1), Strongylosis (2), Strongylosis and Coccidiosis (1), Anaplasmosis & Theileriosis (2), OPI poisoning (1) and Nitrate toxicity (2) were investigated during 2017-18.
- Three outbreaks of Hemorrhagic Septicemia were reported in cattle and buffaloes; one outbreak at Kalala village in Sangrur district and two outbreaks at Tarn Taran district. Out of 231 animals in three farms, 33 were affected and 22 died of the disease. Diagnosis was based on the clinical signs and post mortem lesions.
- An outbreak of Staphylococcal infection was recorded at Noor Mahal in Nakodhar tehsil of Jalandhar district. Out of 800 cattle in the farm, 10 were affected and none were found dead. Diagnosis was based on bacterial isolation.
- One outbreak of classical swine fever was recorded at Jhande village. Out of total 40 pigs, 10 were affected and 5 died of the disease. Diagnosis was based on the clinical signs, post mortem lesions and PCR.

- An outbreak of rabies was reported at village Ramdas, district Amritsar. Out of total of 45 cattle in a farm, six were affected. The diagnosis was made on the basis of Fluorescent Antibody Test (FAT).
- One outbreak of IBR abortion was reported in cattle from Jandhe village in Ludhiana District. Out of 47 animals, 10 animals were affected. The etiological agent was confirmed by PCR.
- One outbreak of Anaplasmosis was reported in Kapurthala District. Out of 7 cattle, one was affected with the disease.
- An outbreak of Theileriosis was reported in cattle in Algokalan village in Tarn Taran district. Out of 20 animals, 5 were affected and 3 died. Two outbreaks of mixed infection of Theleiriosis and Anaplasmosis were reported at Tehsil Batala in Gurdaspur district.

  In case of haemo-protozoan infections (Anaplasmosis, Theileriosis and Babesiosis), diagnosis was made on the basis of blood smear examination, post mortem examination and PCR.
- Strongylosis was reported from Matehwara in Ludhiana district. Out of 80 goats, 30 animals were affected and 2 died. The diagnosis of gastrointestinal parasitism was based on faecal sample examination
- Mixed infection of Strongylosis & Coccidiosis was reported from Kullemajra in Patiala district. Out of 200 goats, 110 were infected and 7 died of the disease.



Rajasthan (Jaipur)

Year of start: 1999

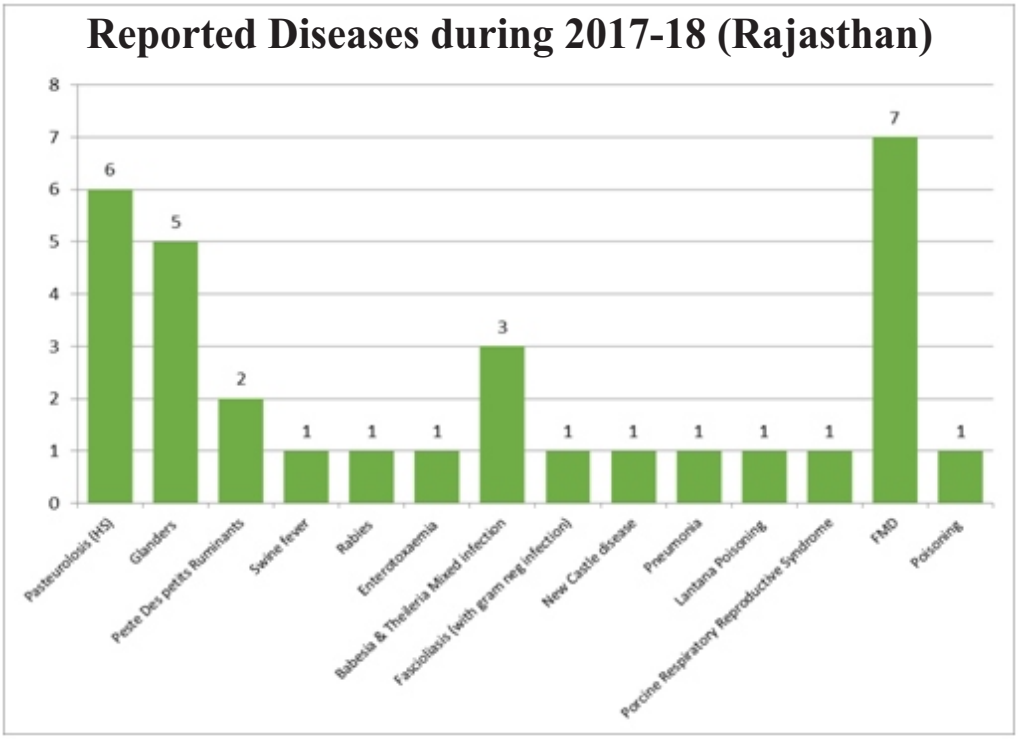
Address	Principal Investigator	Co-Principal Investigator
State Disease Diagnostic Centre Department of Animal Husbandry, Government of Rajasthan, Panch Batti, Jaipur-302001 Email: ddpathologistraj@gmail.com Ph : 0141-2374617 Fax: +91 141 2374617	**Dr. Ashok Sharma** Email: ddpathologistraj@gmail.com	**Dr. Sandip Agrawal** Email: sandip.agrawal67@gmail. com

Fund allotted: Rs.4,25,000/-
Fund Utilized: Rs.4,24,927/-

Summary

- During the year 2017-18, 31 outbreaks of 11 diseases were reported; viz., HS (6), Glanders (5), Peste Des petits Ruminants (2), Swine fever (1), Rabies (1), Enterotoxaemia (1), *Babesia* & *Theileria* Mixed infection (3), Fascioliosis (1), PRRS (1) FMD (7), miscellaneous (3). In 06 outbreaks of HS reported from various districts, there were 389 attacks and 55 deaths. The most affected was Jaipur district with 03 outbreaks, 43 attacks and 14 deaths.
- In five outbreaks of Glanders reported from three districts, 20 animals were affected while two died and eight were euthanized.
- The Enterotoxaemia was reported from Jaiselmer, where in 15 sheep and goat were affected and three died.
- In 02 outbreaks of PPR reported from Baran and Kota districts, 49 goats were affected and 30 died.
- One outbreak of CSF was reported in the Kota district where 375 pigs were affected and 259 died.
- One buffalo was affected with Rabies in Jaipur district and died.
- Out of 32435 blood samples screened for blood protozoa, 2493 were found positive. The details are as follows: Trypanosoma spp (785), *Babesia* spp. (1330), *Theileria* spp. (588), *Anaplasma* spp. (286) and Others (*Ehrlichia* spp., Piroplasms) (504).

- Out of 48149 faecal samples screened, 19119 were found positive. The details are as follows: Strongyloids (1839), Strongyles (4529), *Ascaris* (3961), *Trichuris* (1400), Amphistomes (579), Tapeworms (1212), *Fasciola* spp (3552), *Coccidia* spp (551) and Others (1496).
- Goat (n=660) and sheep (n=660) serum samples were collected and sent to NIVEDI as per the sampling plan provided by ICAR-NIVEDI.



Sikkim (Gangtok)

Year of start: 2015

Address	Principal Investigator	Co-Principal Investigator
Animal Husbandry & Veterinary Department, Government of Sikkim, Tadong-737102	**Dr. Karuna Chettri** Joint Director Email: karunit@gmail.com, karuvet@gmail.com	**Dr. Zeruiah Bhutia** Deputy Director Email: zeruiahbhutia@gmail.com

Fund allotted: Rs.3,25,000/-
Fund Utilized: Rs.8,000/-

Summary

- As seen in the last five years, CSF was reported sporadically throughout this year too.
- CSF, mastitis, hemoprotozoan infections such as Anaplasmosis, Babesiosis and Theileriosis and endo/ecto-parasitic infestations were the most reported diseases.
- Hemoprotozoan infections viz., Anaplasmosis, Babesiosis and Theileriosis in cattle were the most reported from east, south and west district.
- Incidence of Hemorrhagic Septicaemia was low this year, probably due to good vaccination coverage
- Serum samples of goat (n=726) and sheep (n=99) were sent to ICAR-NIVEDI for sero surveillance as per the sampling plan.
- Five Brain samples (5) of cattle sent to ERDDL, Kolkata from cases of unusual mortality were found to be negative for Bovine Spongioform Encephalopathy (BSE) and Listeriosis.
- There was a report of high mortality in pigeons in Namchi, South district, and the cause of mortality was Hemoproteus columbae.

Tamil Nadu (Chennai)

Year of start: 2015

Address	Principal Investigator	Co-Principal Investigator
Director, Directorate of Animal Husbandry and Veterinary Services, Govt. of Tamilnadu, Central Office Buildings, Block II, DMS Complex, Chennai-600006 Tamilnadu, India ahdhojj@gmail.com	**Dr. K. Mohd Uthuman** Chief Epidemiology Officer	**Dr. Karunanidhi** Veterinary Assistant Surgeon, Veterinary Dispensary, Tirur, Thiruvallur Division

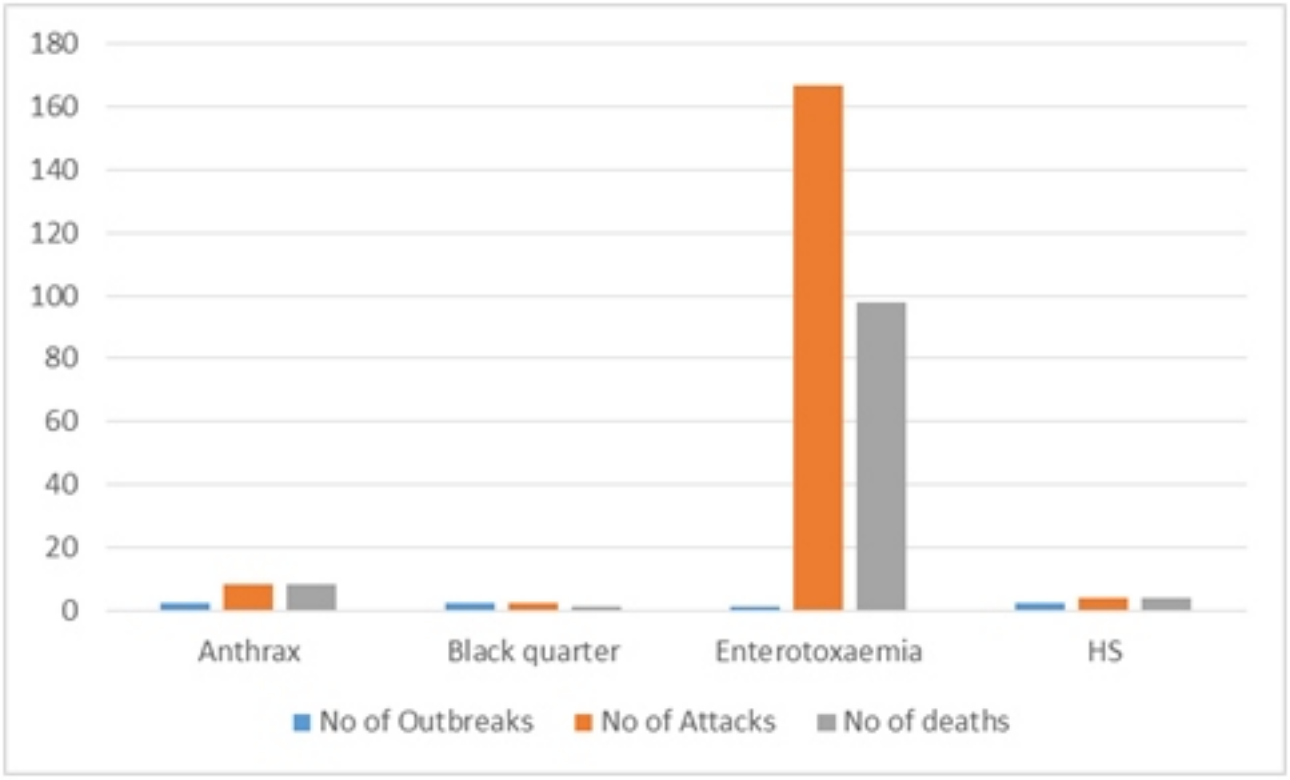
Fund allotted: Rs.87,675/-
Fund Utilized: Rs.19,086/-

Summary

- During the year 2017-18, 11 outbreaks of five diseases viz. Anthrax (2), Enterotoxaemia (2), Black quarter (2), Haemorrhagic septicaemia (1) and FMD (1) were reported in the state.

- Five Anthrax outbreaks, 4 involving bovines and one in sheep, causing death of 08 adult white cattle were recorded. The outbreaks occurred in four different districts.
- A total of two outbreaks of Enterotoxaemia were recorded in sheep causing 98 deaths out of 167 attacks in two villages of Kanchipuram district.
- A total of two Black quarter outbreaks were reported in two villages of two districts causing one death out of two attacks.
- During the year, one Haemorrhagic septicaemia outbreak was recorded causing 02 deaths out of 2 attacks (Buffalo).
- During the year, there was an outbreak of FMD, with 59 attacks and one death of a 6 months old calf in Tiruvallur district.
- During the year a total of 849 each sheep and goat serum samples from 60 villages were collected and sent to ICAR-NIVEDI by respective Animal Disease Investigation Units of 17 districts as against 23 districts selected through ICAR-NIVEDI for sero-screening by ELISA for Brucellosis and Bluetongue.
- Sero-prevalence of Brucellosis (849 random samples from sheep and goat) was 2.7%, while that of bluetongue was 64.54%.

Reported Diseases during 2017-18 (Tamilnadu)



Telangana (Hyderabad)

Year of start: 2015

Address	Principal Investigator	Co-Principal Investigator
AICRP ADMAS UNIT, HYDERABAD, Telangana State Veterinary Biologicals & Research Institute, Shanthinagar, Hyderabad – 500 028	**Dr. M. A. Mujeeb Ather** Deputy Director (AH) Email: drmujeebather@redifmail.com	**Dr. M. A. Muqueeth** Assistant Director (AH) Email:mamuqueeth@ yahoo.com

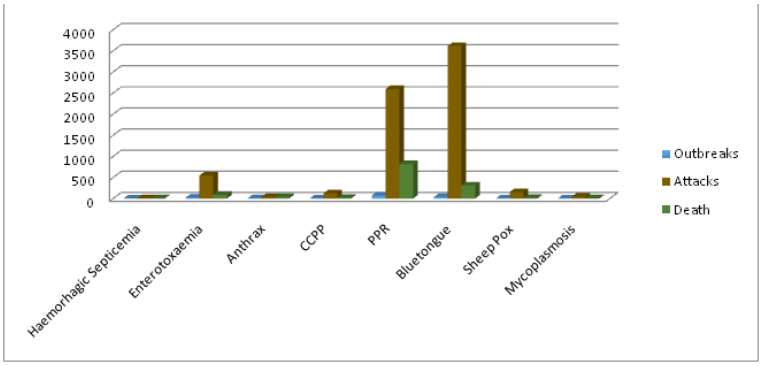
Fund allotted: Rs.3,75,000/-

Fund Utilized: Rs.2,64,924/-

Summary

- During the year 2017-18, a total of 151 outbreaks were reported in Telangana state. Out of 7125 affected animals, 1302 animals died. The diseases reported during this period were Haemorrhagic septiceamia, Enterotoxaemia, Anthrax, CCPP, PPR, Bluetongue, Sheep pox and Mycoplasmosis.
- During 2017-18, a total of two Haemorrhagic septiceamia outbreaks were reported, in which 10 animals were affected and six animals (60%) died. With respect to other diseases, there were 21 outbreaks of Enterotoxaemia (545 attacks and 89 deaths), 8 outbreaks of Anthrax (39 attacks and 39 deaths), 3 outbreaks of CCPP (125 attacks and 17 deaths), 74 outbreaks of PPR (2595 attacks and 817 deaths), 36 outbreaks of Bluetongue (3612 attacks and 310 deaths), 4 outbreaks of Sheep pox (154 attacks and 17 deaths) and 3 outbreaks of Mycoplasmosis (45 attacks and 7 deaths).
- Haemorragic septicaemia was reported from two districts (Khammam and Medak), Enterotoxaemia from four districts (Warangal, Nalgonda, Khammam and Mahabubnagar), Anthrax in sheep and goats from four districts (Nalgonda, Warangal, Karimnagar and Nizamabad), Bluetongue from two districts (Mahabubnagar and Medak), Sheep pox from three districts (Nalgonda, Warangal and Rangareddy) and Mycoplasmosis from one district (Warangal).

Reported diseases during 2017-18 (Telangana)



Tripura (Agartala)

Year of start: 2015

Address	Principal Investigator	Co-Principal Investigator
State Disease Investigation Laboratory, P.O. Abhoynagar, Agartala, Tripura West Pin-799005 Ahtripura5@gmail.com Phone: 0381-2352692 Fax: 0381-2322263	**Dr. Arup Kumar De** Email: arupde1962@gmail.com	**Dr. Jyotirmoy Roy** Email: roybulti@yahoo.co.in

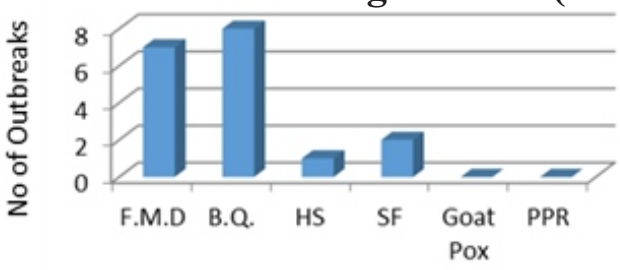
Fund allotted: Rs.4,00,000/-

Fund Utilized: Rs.1,76,390/-

Summary

- During the year 2017-18, 18 outbreaks of five diseases were reported; viz., Classical Swine fever (2), Black quarter (8), Haemorrhagic septicaemia (1) and FMD (7) in the state.
- A total of 2 Classical Swine fever outbreaks occurred, in which, 251 pigs were affected and 198 pigs died. One of the outbreaks included a Government farm, where in regular vaccination was carried out.
- A total of 8 outbreaks of Black quarter with 14 attacks and 11 deaths was reported.
- During the year, one Haemorrhagic septicaemia outbreak was recorded causing 02 deaths out of 2 attacks.
- During the year, there were 7 outbreaks of FMD, with 87 attacks and 10 deaths.
- Serological screening of certain livestock diseases were carried out and seropositivity recored is as follows; PCV-2 infection [6.9% (2/29)], PPR [0% (0/4)], PRRS [0% (0/29)], CSF [23.6 % (38/161)], Duck Plague [40.90 % (18/44)], Brucellosis [0.61 % (07/1139)], IBR [26.26 % (26/108)].
- Out of 2129 faecal samples screened, 1301 were found positive and details are as follows; [Strongyloids (319), Strongyles (103), *Ascaris* (18), *Trichuris* (21), *Moniezia* (2), Amphistomes (773), Tapeworms (1212), *Fasciola* spp (6), *Coccidia* spp (22), *Ancylostoma* (29), and Others (8)].

Reported Diseases during 2017-18 (Tripura)



Uttar Pradesh (Bareilly)

Year 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	**Dr. Sukdeb Nandi** Principal Scientist Email: sukdebnandi@yahoo.in	**Dr. Vinodh Kumar** Scientist (SS) Email: vinodhkumar_rajendran @ yahoo.co.in, vinodhkumar. rajendran@gmail.com

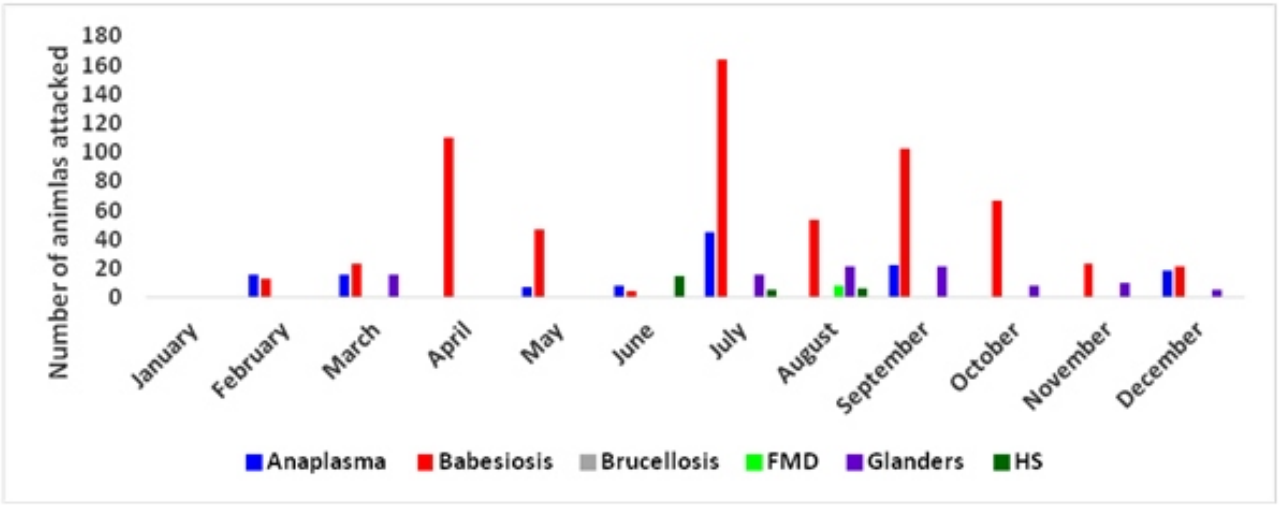
Fund allotted: Rs.4,50,000/-
Fund Utilized: Rs.4,16,658/-

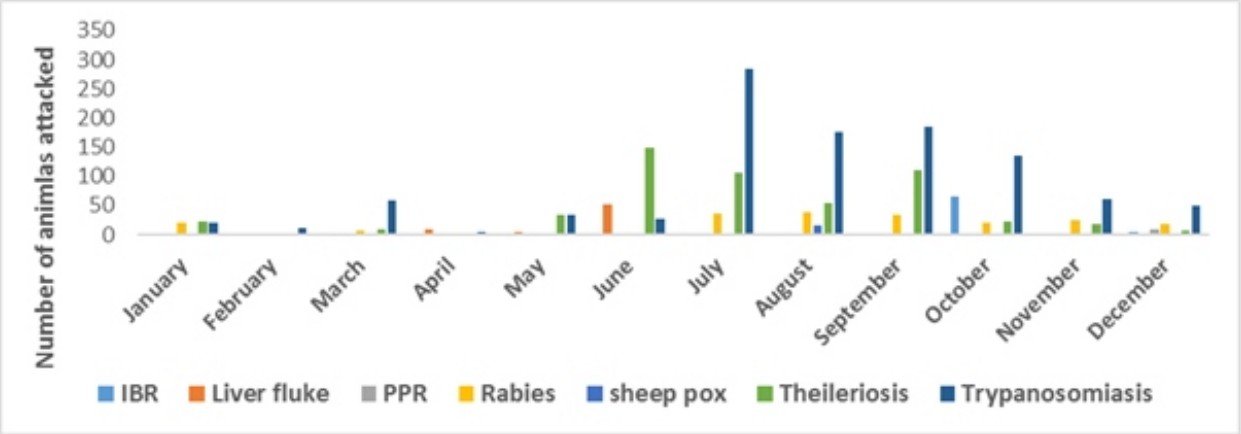
Summary

- During the year 2017-18, PPR, FMD, rabies and sheep pox were the important viral diseases and Theileriosis, Anaplasmosis, Babesiosis and Trypanosomiasis were the important blood protozoan diseases reported in the state.
- Glanders in horse was reported from Dadri and Gaziabad of Gautam Budh Nagar of Uttar Pradesh.
- Comparatively higher incidence of live fluke infection was reported in the month of May to July.
- The incidences of various diseases were at peak in the month of July and gradually declined over the subsequent months to December.
- Babesiosis in cattle and buffaloes were reported from Etawah, Ballia, Mirzapur, Aonla, Bareilly, Amroha, Chitrakoot, Sonbhadra, Farrukabad, Saharanpur, Hardoi, Shamli, Bijnoor and Fatehpur.
- Theileriosis in cattle and buffaloes were reported from Ballia, Pilibhit, Aonla, Bareilly, Budaun, Etawah, Gonda, Hathras, Amroha, Shamli, Hardoi, Bijnoor and Budaun.
- Anaplasmosis in cattle and buffaloes was reported from Ballia, Meerut, Shamli, Gonda, Fatehpur and Hardoi.
- Trypanosomosis in cattle and buffaloes was reported from Etawah, Sonbhadra, Hathras, Meerut, Bhadohi, Agra, Hardoi, Mirzapur, Bareilly, Amroha, Farrukabad, Saharanpur, Shamli, Bijnoor, Fatehpur, Chitrakoot and Kushinagar.
- Rabies in cattle, buffaloes and dogs was reported in Hathras, Saharanpur, Budaun, Fatehpur, Unnao and Shamli districts.

- Sheep pox in sheep was reported in Gazipur.
- BHV-1 infections in cattle and buffaloes was reported in Fatehpur and Meerut.
- Brucellosis and HS in cattle and buffaloes were reported in Meerut.
- PPR in goats was reported in Etah, Bareilly and Hardoi.
- FMD in cattle and buffaloes was reported in Sitapur and Bareilly.
- Liver fluke infestation in cattle and buffaloes were reported in Jaunpur, Mirzapur, Ballia, Sonbhadra, Raebareilly, Meerut and Bhadohi.
- A total of 418 serum samples (132 sheep and 286 goats) were tested for presence of antibodies to bluetongue virus by ELISA and 56/132 (42%) sheep and 151/286 goat (53%) samples were found positive.
- A total of 121 (33 sheep and 88 goats) serum samples of sheep and goats were tested for presence of antibodies to PPR virus by ELISA and 33/33 (100%) sheep and 72/88 (82%) goat samples were found positive.
- A total of 246 (48 cattle, 156 buffalo and 42 goats) serum samples of different species of animals were tested for presence of antibodies to Brucella by ELISA and only 3 goats were found positive.
- A total of 468 serum samples were tested for antibodies to BoHV-1 and 138 serum samples of bovines were tested for antibodies to BVDV by ELISA and only 91/468 (20%) serum samples were found positive for BHV-1 and none for BVDV.
- A total of 204 serum samples of bovines (47 cattle and 157 buffaloes) were tested by ELISA for presence of antibodies to Trypanosoma sp. and 39/47 (83%) and 140/157 (89%) samples respectively were found positive.

Month-wise number of animals attacked for various diseases





Uttarakhand (Dehradun)

Year of start: 2015

Address	Principal Investigator	Co-Principal Investigators
Animal Husbandry & Veterinary Department, Government of Uttarkhand, Kedarpuram, Dehradun-248115	**Dr. Prem Shanker Yadav** Joint Director (Disease Control) Email: drpshanker@gmail.com drpshanker@rediffmail.com	**Dr. Prasoon Dubey** Veterinary Officer, Grade I State Disease Diagnostic Lab, PASHULOK, Dehradun. Email: drprasoondubey@rediffmail.com **Dr. Manju Aswal** Veterinary Officer, Grade II Divisional Disease Diagnostic Lab, Hawalbagh, Almora. Email: manjuvet29111@gmail.com

Fund allotted: Rs.4,50,000/-
Fund Utilized: Rs.2,77,582/-

Summary

- A total of 208 Serum samples were collected and sent for PD, FMD Mukteswar. Out of 208 samples, 46 sample were found positive for FMD with Strain 'o' of FMD Virus.

- Outbreaks of Glanders were reported in Champawat, Haridwar and Dehradun districts. A total 95 equids serum samples were sent to NRCE Hisar and 15 serum samples were reported positive.
- Blood parasitic infestations were reported round the year. The incidence of Anaplasmosis, Babesiosis, Theileriosis are recorded as sporadic in the state.. Out of total 2489 samples tested, the incidence of Anaplasmosis 7.05%, Babesiosis 7.37% and Theileriosis 1.70 % cases reported positive.
- Among the gastrointestinal parasites, out of 19,504 faecal samples the incidence of Nematodes 30.2%, Cestode 02.80%, Trematods 21.0% Protozoa 6.0 % cases were recorded.
- A total of 572 serum samples collected from different villages of Uttarakhand were sent to ICAR-NIVEDI, Bengaluru for screening of various diseases as part of National Livestock Serum Repository. Out of 343 samples tested for Bluetongue 139 were reported positive and out of 471 samples tested 101 were reported positive for PPR.
- A total of 572 Serum samples and cloacal swabs of poultry were sent to NIHSAD, Bhopal for Avian Influenza surveillance and no positive case has been reported.
- Screening of TB, JD has been done by Tuberculin and Johnin test in 22 and 2 animals respectively and all were found negative.

West Bengal (Kolkata)

Year of start: 2005

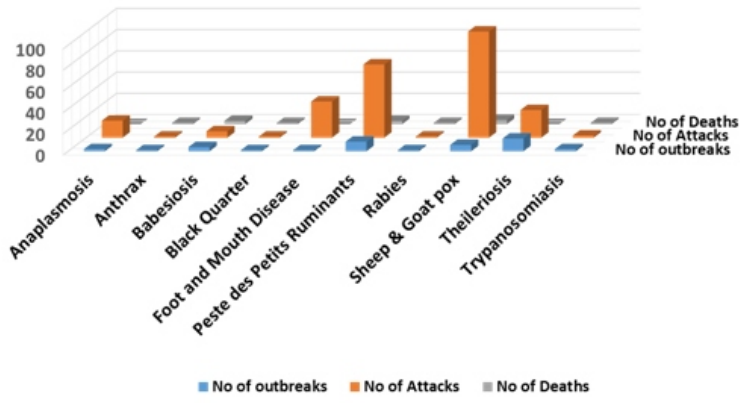
Address	Principal Investigator	Co-Principal Investigator
ICAR-Indian Veterinary Research Institute, Eastern Regional Station No-37 Belgachia Road, Kolkata-700 037 Ph: 03325582965, Fax: 033-25565304	**Dr. Bimalendu Mondal** Principal Scientist Email: bimalendu.m@gmail.com	**Dr. Premanshu Dandapat** Principal Scientist Email: pdandapat@yahoo.co.in Fax: 033-25565725

Fund allotted: Rs.3,75,000/-
Fund Utilized: Rs.2,39,698/-

Summary

- A total of 137 serum samples were collected (in 2017-18) from sheep and goat from 6 villages (Bankura and Cooch Behar districts) in West Bengal. These sera were sent to ICAR-NIVEDI for further investigations. An overall 40% sero positivity was noticed against PPR virus wherein 43% and 32% sera of goat and sheep, respectively found positive for PPV antibody. This sero-conversion was due to vaccination against PPR.
- Five outbreaks were attended and investigated in 2017-18. A severe goat pox outbreak was attended in a goat farm in Nadia district (West Bengal) in August 2017 where 15% and 9% morbidity and mortality respectively were noticed. In this farm (N=87), disease was noticed only in the unvaccinated animals and death was noticed only in kids under three months of age.
- An outbreak of porcine reproductive and respiratory syndrome (PRRS) in pigs was investigated in Kalimela Block (Malkangiri district, Odisha) in September 2017. Investigation started after the occurrence of the disease proper. Morbidity and mortality was 43% and 23% respectively (N=160) with high rate of piglet mortality.
- A foot and mouth disease (FMD) outbreak occurred in cross-bred cattle and buffaloes in Tajpur village (North 24-Paraganas, West Bengal) in September 2017. In December 2017, a simultaneous outbreak of PPR and Orf occurred in goats (near Kharagpur, West Bengal). Mortality due to PPR was 31% (N=360) and 30% of animals were noticed to have orf lesions in mouth. Abortion was noticed in 7.5% animals. In December 2017, outbreak of Orf was noticed in goats (Kalyani, Nadia district, West Bengal). About 8% of total 145 goats in a small hamlet was affected and surprisingly all affected goats were female, either pregnant or recently given birth to kids. No male or female kids were affected.
- Overall expenditure of fund (2017-18) was 64% including contingency (70%) and TA (41%).

Reported diseases during 2017-18 (West Bengal)



Events

Release of "LDF-Mobile App"by Union Minister of Agriculture

Livestock Disease Forewarning –Mobile Application (LDF-Mobile App) was released by Sri. Radha Mohan Singh, Minister of Agriculture and Farmers welfare in the presence of union minister of state for Agriculture and Farmers welfare Shri Gajendra Singh Shekhawaton 27th December, 2017 at New Delhi. The mobile application, which is developed by ICAR-National Institute of Veterinary Epidemiology and Disease Informatics (ICAR-NIVEDI), runs on on all Android mobiles and occupies 2.5 MB space. In addition to forewarning, the LDF-Mobile App also provides the details of clinical samples to be collected in case of outbreaks of the listed diseases for laboratory confirmation. Immediate preventive measures to be taken up in case of positive prediction/disease confirmation.

Speaking on the occasion, the minister said, by successfully eradicating the dreaded Rinderpest, India has not only proved its ability to face the challenges, but also to succeed, despite various limitations. Similar efforts are needed to control and eradicate the diseases like FMD, PPR, Brucellosis, CSF, BT, HS etc., which cause huge economic loss annually to the livestock industry.

He said ICAR-NIVEDI has identified 13 priority diseases, based on the past incidence patterns and has built a strong database of these diseases. The disease database and those of climatic and non-climatic factors are used for providing monthly livestock disease forewarning to alert the animal husbandry departments, both at the National/state level for taking appropriate preventive measures. He said the complex statistical algorithm used in the mobile app categorizes into Very High Risk, High Risk, Moderate Risk, Low Risk, Very Low Risk and No Risk for a said disease, so that stake holders can effectively utilize the available resources (money and manpower).

Speaking on the occasion Shri Gajendra Singh Shekhawat,Union Minister of State Agriculture and Farmers Welfare appreciated efforts made by the Scientists and encourage the scientists to develop such application in local languages,

The event was attended by Dr. Trilochan Mohapatra, Secreatry DARE and DG (ICAR), Shri. Devendra Chaudhary, Secretary (ADF), Dr. J. K. Jena, Deputy Director (Animal Sciences), Dr. Suresh Honnappagol, Animal Husbandry Commissioner, Dr. Parimal Roy, Director, ICAR-NIVEDI and other dignitaries from ICAR, Department of Animal Husbandry Dairying and Fisheries.

Release Function at ICAR HQ New Delhi

Release of "LDF-Mobile App" in News

UNI United News of India
India's Multi Lingual News Agency
Saturday, Dec 30 2017 | Time 06:49 Hrs(IST)
Centre releases Mobile App for early warning on livestock disease

THE NEW INDIAN EXPRESS
Saturday, December, 30, 2017
Mobile app forewarning of livestock diseases launched
By PTI | Published: 27th December 2017 08:30 PM |
Last Updated: 27th December 2017 08:31 PM |

Mumbai, Dec 27 (PTI) Union Agriculture Minister Radha Mohan Singh today launched a mobile application which can forewarn farmers about diseases affecting the livestock.

The app - Livestock Disease Forewarning (LDF) -- has been developed by ICAR-National Institute of Veterinary Epidemiology and Disease Informatics (ICAR-NIVEDI), an official statement said.

Apart from early warning, the app will also provide information about clinical samples for diagnosis in the case of an epidemic, the minister said.

ICAR-NIVEDI has identified 13 priority diseases with a strong database and provides monthly livestock disease alerts to the state and Central animal husbandry departments. PTI SM KRK .

krishijagran.com (/)
india's largest rural media network
Livestock Disease Forewarning –Mobile Application (LDF-Mobile App)

NEWS (Feeds)
KJ

Livestock Disease Forewarning –Mobile Application(LDF-Mobile App)

ICAR-National Institute of Veterinary Epidemiology and Disease Informatics (ICAR-NIVEDI), Bengaluru, in New Delhi has launched Mobile Application (LDF-Mobile App), Union Agriculture and Farmers' Welfare Minister, Shri Radha Mohan Singh has launched the on 27th Dec. This app works on all kind of Android smartphones and takes up 2.5 MB space. dreaded Rinderpest disease has been eradicated from India and stressed that similar efforts are needed to control and eradicate diseases like FMD, PPR, Brucellosis, CSF, BT, HS etc., which cause huge economic loss annually to the livestock rearers and livestock industry as a whole.

He said that ICAR-NIVEDI has identified 13 priority diseases based on their past incidence patterns and has built a strong database of these diseases and has been providing monthly livestock disease alerts to the state and central animal husbandry departments.

रापजासूविसं NIVEDI

Shri Singh said that to widen its reach, ICAR-NIVEDI developed the app and used Monthly Bulletin system to send out early warning. Shri Singh said the complex statistical algorithm also considers both climatic and non-climatic factors and categorizes districts into Very High Risk, High Risk, Moderate Risk, Low Risk, Very Low Risk and No Risk for a particular disease so that stakeholders can effectively plan and utilize the available resources.

Apart from early warning, the app will also provide information about clinical samples for the diagnosis in case of the epidemic. This app works on all kind of Android smartphones and takes up 2.5 MB space. He said that hopefully, this app will be beneficial for the consumers and stakeholders engaged in disease control programmes.

By:Sangeeta

the pioneer
SATURDAY, 30 DECEMBER 2017 | 06:50:32 AM
NEW APP TO FOREWARN OF DISEASES IN FARM ANIMALS
Thursday, 28 December 2017 | PNS | New Delhi

To forewarn those dealing with livestock about the diseases that could affect their farm animals, the Indian Council of Agricultural Research (ICAR) and National Institute of Veterinary Epidemiology and Disease Informatics (NIVEDI), have developed a mobile application to send out early warnings. The app will also provide information about clinical samples for the diagnosis in case of the epidemic. Earlier, the Centre has come out with an application to help farmers on crop damages.

Launching the app, Union Agriculture Minister Radha Mohan Singh on Wednesday said that dreaded Rinderpest disease has been eradicated from India and stressed that similar efforts are needed to control and eradicate diseases like foot and mouth diseases, PPR (peste des petits ruminants), Brucellosis, CSF (Classical swine fever), Bluetongue disease, Haemorrhagic septicaemia which cause huge economic loss annually to the livestock rearers and livestock industry as a whole.

He said that ICAR-NIVEDI has identified 13 priority diseases based on their past incidence patterns and has built a strong database of these diseases and has been providing monthly livestock disease alerts to the State and Central animal husbandry departments. The app will also provide information about clinical samples for the diagnosis in case of the epidemic.

General Knowledge Today
India's Daily E-Magazine of GK & Current Affairs
Government launches Livestock Disease Forewarning–Mobile Application
December 29, 2017 No comments

The Union Ministry of Ministry of Agriculture and Farmers Welfare has launched Livestock *Disease Forewarning –Mobile Application (LDF-Mobile App).*
It was launched by Union Agriculture and Farmers' Welfare Minister Radha Mohan Singh in New Delhi. During the launch, the Minister also informed that dreaded ***Rinderpest disease*** has been eradicated from India

Key Facts

LDF-Mobile App was developed by ICAR-National Institute of Veterinary Epidemiology and Disease Informatics (ICAR-NIVEDI), Bengaluru. This app will be beneficial for consumers and stakeholders engaged in disease control programmes.
The app will provide early diseases warning and also information about clinical samples for diagnosis in case of epidemic so that immediate action in case of epidemic. This app works on all kind of android smartphones and takes up 2.5 MB space.
ICAR-NIVEDI had identified 13 priority diseases based on their past incidence patterns and built strong database of these diseases on app. The app considers both climatic and non-climatic factors and categorizes districts for a particular disease into *Very High Risk, High Risk, Moderate Risk, Low Risk, Very Low Risk and No Risk* so that stakeholders can effectively plan and utilize the available resources.

Business Standard
12/30/2017
Livestock Disease Forewarning - Mobile Application (LDF-Mobile App) launched

ALSO READ

NEWS CRUST
Mobile App for 'Livestock disease' forewarning launched
December 27, 2017 No comments

Shri Radha Mohan Singh launches Livestock Disease Forewarning -Mobile Application (LDF-Mobile App)

Press Information Bureau
Government of India
Ministry of Agriculture

Monthly Bulletin system used in this mobile app to send out early warning: Shri Radha Mohan Singh

Apart from early warning, LDF-Mobile App also provides information about clinical samples for the diagnosis in case of the epidemic: Shri Singh

Radha Mohan Singh @RadhamohanBJP · Dec 27
Today, I launched Livestock Disease Forewarning - Mobile App (#LDFM), which uses Monthly Bulletin system to send out early warnings.
radhamohansingh.in/wp-content/upl...

ICAR, Agriculture INDIA, Livestock&Fish-India and 4 others
19 39 139

DAIRY TIMES .com
www.thedairytimes.com
Shri Radha Mohan Singh launches Livestock Disease Forewarning – Mobile Application (LDF-Mobile App)

Outlook
THE NEWS SCROLL
27 DECEMBER 2017 Last Updated at 8:32 PM
Mobile app forewarning of livestock diseases launched
Mumbai, Dec 27 Union Agriculture Minister Radha Mohan Singh today launched a mobile application which can forewarn farmers about diseases affecting the livestock.

The app - Livestock Disease Forewarning (LDF) – has been developed by ICAR-National Institute of Veterinary Epidemiology and Disease Informatics (ICAR-NIVEDI), an official statement said.

Apart from early warning, the app will also provide information about clinical samples for diagnosis in the case of an epidemic, the minister said.

ICAR-NIVEDI has identified 13 priority diseases with a strong database and provides monthly livestock disease alerts to the state and Central animal husbandry departments.

Green Ecosystem
HOME LATEST NEWS SHOP
Home » Latest News » Livestock Disease Forewarning -Mobile Application (LDF-Mobile App) launched
Livestock Disease Forewarning -Mobile Application (LDF-Mobile App) launched
By openagriculture On December 28, 2017 In Latest News No Comments

Radha Mohan Singh on Twitter: "Developed by #ICAR-NIVEDI, this app works on Android smart-phones and takes up 2.5 MB space."

One Day Workshop on Livestock Disease Forewarning-Mobile Application at ICAR-NIVEDI on 19th July 2018

One day workshop on Livestock Disease Forewarning-Mobile Application was oragnisedat ICAR-NIVEDI on 19th July 2018. A total of 16 participants from different parts of the country took part in the workshop.

Dr. Suresh. Honnappagol, Animal husbandry commissioner, DADF, GOI, New Delhi inaugurated the program and appreciated the efforts made in the development of LDF-MA, which forewarns the likely occurrence of livestock diseases two month in advance. He also emphasized the need of such mobile application in the field of animal health sector to create an awareness about likely occurrence and alert of livestock diseases at district level so that rapid preventive measures are put in place. He also clicked "Auto messaging facility" that reminds the AICRP centers to send the reports and feedback in time.

Dr.Parimal Roy, Director ICAR-NIVEDI reiterated the need of strong network between state animal husbandry departments and ICAR-NIVEDI for development of robust and quality disease database. He also stressed that the feedback received afterusing such applications will help in improvement of technology.

Dr. K. P Suresh, Principal Scientist demonstrated the installation and usage of LDF-MA into participants'mobile phone.In addition to forewarning, the LDF-Mobile App also provides the details of clinical samples to be collected in case of outbreaks of the listed diseases for laboratory confirmation. The app has information about immediate preventive measures to be taken up in case of positive prediction/disease confirmation.

Dr.Divakar Hemadri and Dr.S.S.Patil, Principal Scientist delivered lectures on Disease investigation, reporting and on various formats for collection of vaccination, deworming details.

Budget Allocation And Releases AICRP on ADMAS for 2017-18

Sl No	Name of the Centre	Allocation 2017-18			Release 2017-18		Total
		Contingency	TA	Total	Contingency	TA	
	AICRP Central Unit, ICAR-NIVEDI, Bengaluru						
1	Kerala (State AH Dept.)	350000	75000	425000	340487	75000	415487
2	Meghalaya (ICAR)	300000	100000	400000	285866	100000	385866
3	Manipur (State AH Dept.)	300000	75000	375000	300000	75000	375000
4	Bihar (University)	350000	75000	425000	334666	58516	393182
5	Odisha (State AH Dept.)	350000	100000	450000	350000	100000	450000
6	Punjab (University)	300000	75000	375000	299799	74980	374779
7	Telangana (State AH Dept.)	300000	75000	375000	282363	35575	317938
8	Tripura (State AH Dept.)	300000	100000	400000	38223	80713	118936
9	Uttar Pradesh (ICAR)	350000	100000	450000	240967	99557	340524
10	Kolkata (ICAR)	300000	75000	375000	261859	-1482	260377
11	Goa (ICAR)	250000	60000	310000	249835	59083	308918
12	Madhya Pradesh (State AH Dept.)	350000	75000	425000	350000	75000	425000
13	Haryana (University)	300000	75000	375000	146414	75000	221414
14	Jammu & Kashmir (State AH Dept.)	300000	100000	400000	167057	87764	254821
15	Ahmedabad (State AH Dept.)	350000	75000	425000	301101	54348	355449
16	Karnataka (State AH Dept.)	350000	75000	425000	346792	74215	421007

Budget Allocation And Releases AICRP on ADMAS for 2017-18

Sl No	Name of the Centre	Allocation 2017-18			Release 2017-18		Total
		Contingency	TA	Total	Contingency	TA	
17	Himachal Pradesh (State AH Dept.)	300000	100000	400000	5000	79000	84000
18	Andaman & Nicobar (ICAR)	300000	100000	400000	300000	100000	400000
19	Rajasthan (State AH Dept.)	350000	75000	425000	-16354	72776	56422
20	Nagaland (State AH Dept.)	300000	75000	375000	440000	75000	515000
21	Mizoram (State AH Dept.)	300000	100000	400000	300000	100000	400000
22	Andra Pradesh (State AH Dept.)	350000	75000	425000	350000	75000	425000
23	Uttarakhand (State AH Dept.)	350000	100000	450000	198349	36346	234695
24	Maharasthra (State AH Dept.)	350000	75000	425000	231000	75000	306000
25	Sikkim (State AH Dept.)	250000	75000	325000	223000	75000	298000
26	Assam (University)	500000	120000	620000	499033	117229	616262
	Total	8450000	2205000	10655000	6825457	1928620	8754077