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ICAR-NIVEDI

Newsletter

Vol.13(1) Jan to Jun 2023

Director's Desk

Greetings from ICAR-NIVEDI...!!

Our team's dedication shone through as they addressed multiple outbreaks, providing invaluable advisories for critical situations such as the ASF outbreak in Kerala, the Porcine enterovirus in Karnataka, and LSD in Maharashtra. In a testament to our innovation and dedication, six diagnostic kits developed by NIVEDI are currently undergoing techno-commercial assessments. These kits will soon be primed for commercialization, further cementing our role in the realm of veterinary health.

A significant milestone was the inauguration of the PPR laboratory by Dr Abhijit Mitra, Animal Husbandry Commissioner, DAHD, GoI. This lab is set to spearhead nationwide surveillance and monitoring of PPR under the esteemed network program of WOA. Our commitment to pushing boundaries in research and development is evident from the numerous MoUs we have signed with esteemed institutions such as TIGS, Bengaluru, KVAFSU, Bidar, and Dayanand Sagar University, Bengaluru. In the intellectual property domain, our innovative spirit was recognized with one patent and two copyrights granted to NIVEDI.

Naa Vic, our Agri Business Incubation Centre, continues its mission of fostering the next generation of Agri-entrepreneurs. Through 12 training sessions and 15 workshops, we aim to pave the way for innovative, sustainable solutions in the agricultural sector.

I extend my heartfelt congratulations to the editorial team for their meticulous effort in compiling and crafting this newsletter. It stands as a testament to the unwavering commitment and hard work of every member of the ICAR-NIVEDI family.

Jai Hind!

Baldev Raj Gulati

I am delighted to present the ICAR-NIVEDI newsletter for the first half of 2023. During these six months, NIVEDI has witnessed exemplary growth in research and has made significant strides in delivering crucial data for the control of animal diseases, particularly Lumpy Skin Disease (LSD).



Research Achievements

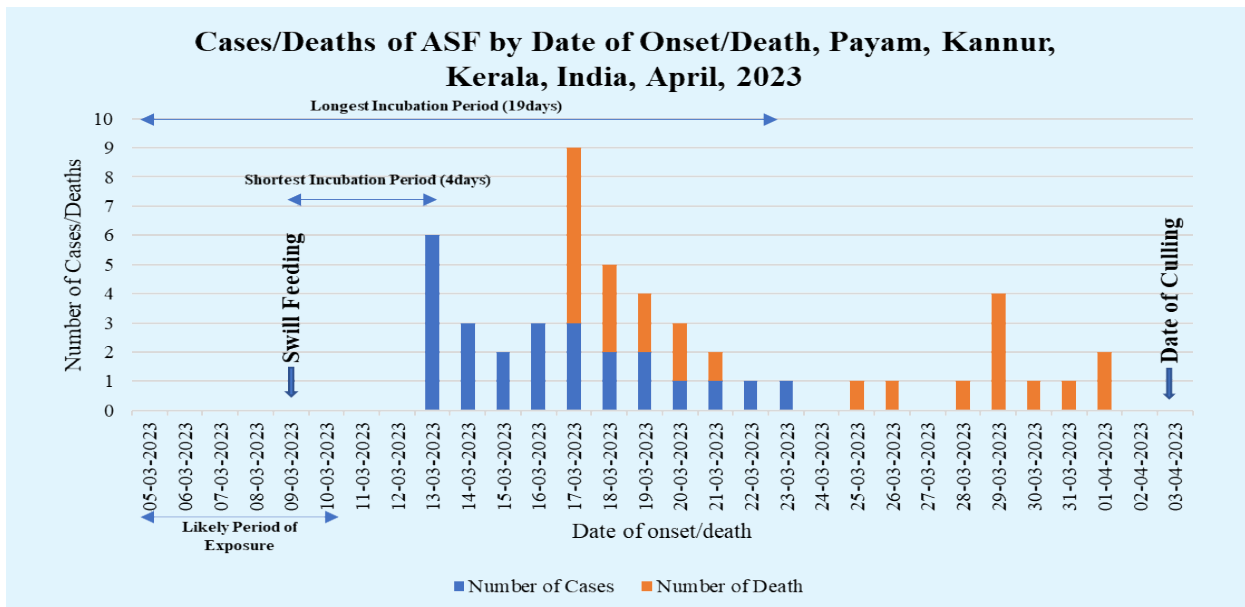
African Swine Fever (ASF) Outbreak in Kannur, Kerala Linked to Swill Feeding

ICAR-NIVEDI undertook a comprehensive investigation in April 2023 into suspected ASF outbreaks in Kannur district, Kerala. The study aimed to pinpoint the source of the infection, identify potential risk factors, and estimate the associated economic losses. By employing a questionnaire, the researchers gathered spatio-temporal data on the outbreaks across two villages, which spanned four farms. Epidemic curve analysis of the temporal data pinpointed swill feeding as the most probable infection source.

Notably, the affected farms were closely located to pork retail shops, and there was a routine collection of swill from these outlets. The feeding of uncooked swill emerged as a significant risk factor for the ASF outbreak. The study also observed that although there were no free-roaming pigs in the

affected villages, wild pigs were prevalent in the vicinity. Interestingly, the farms within the infected zone did not maintain direct contact with one another. Moreover, no new pigs had been acquired in the preceding six months, and vehicles used for farm-related activities weren't shared among pig farmers, all in an effort to minimize the potential spread of ASF.

The disease exhibited symptoms ranging from peracute to acute. The study's economic analysis found that the ASF outbreaks incurred losses amounting to Rs.10,69,933 for the affected farms. This data offers a snapshot of the substantial economic impact the disease can have on small-scale farmers, who represent a significant portion of Kerala's pig farming sector.



Porcine Enterovirus Outbreak Hits Pig Farms in Hassan, Karnataka

In Budhanoor village, Hassan district, Karnataka, an outbreak occurred in pigs aged 4-9 months, marked by hindlimb paralysis. The event, which unfolded on 25th May 2023, followed an 18-month clinical history of the same symptom on the farm, with a morbidity rate of 60% (66 out of 110 pigs). The farmer observed that, post-birth, the piglets thrived, showing regular growth patterns and feeding behaviors until they reached 3-4 months. Post this age, unsettling symptoms began to manifest, starting with tremors in their hind limbs. This escalated to more severe signs, such

as fetlock joint twisting, dragging of the hind limbs, and ultimately complete hindlimb paralysis. Intriguingly, even with the disease's progression, affected pigs continued to nurse their 1-2 week old piglets, though with limited mobility. The culmination of this ailment saw pigs unable to feed, leading to their unfortunate demise from respiratory failure. The farmer pointed out that while isolated cases had been reported on neighboring farms, the sheer volume of cases on his farm was unique.

This prompted a thorough investigation. Clinical

samples ranging from blood, fecal material, to nasal swabs were obtained from 10 affected pigs. Autopsies were conducted on two deceased pigs, from which samples of all vital organs, including the brain, spinal cord, and brain stem, were taken.

Significantly, out of 10 fecal samples, two tested positive for Porcine enterovirus. PCR screening on brain and spinal cord samples also confirmed the virus's presence. Further sequencing of these samples pinpointed Porcine enterovirus 9 as the etiology. All the samples were negative for other common pathogens, such as PCV, PPV, PRRSV, CSF, and JEV. The Porcine enterovirus 9 was identified as prevalent on the farm. There's a

clear need for additional research to comprehend the broader implications of this virus within the district's and state's pig farming communities.



Hindlimb paralysis in pigs

Lumpy Skin Disease Prevalence in Asia and Africa Analyzed

Lumpy Skin Disease (LSD) remains a major economic concern in the cattle industry, notably affecting small-scale farmers and the wider livestock sector. Through advanced scientometrics, researchers from NIVEDI employed disease modeling techniques to extrapolate the prevalence of LSD across Asia and Africa. Their findings revealed that cattle comprised a staggering 90% of all reported LSD cases, with buffaloes making up

the remaining 10%. A more granulated sub-group examination unveiled a significant 14% overall prevalence rate for LSD. Within this data, Asia represented 11%, whereas Africa had a higher rate at 21%. These statistics on LSD's geographic reach emphasize its global significance and underscore the necessity for international collaboration to effectively address and mitigate its impact.

Scientific Activities

Research Advisory Committee (RAC) recommends focus on LSD and ASF

15th RAC met on 17th March 2023 to review the progress of research activities of 2022-2023 and to suggest future roadmap. The progress was presented by respective group leaders. The committee appreciated the research progress made by the scientists and emphasized the need of country wide research on epidemiology of emerging diseases like LSD, ASF and to strengthen the forecasting system.



IRC Reviewed the Research Progress

The IRC meeting was held on 17th January 2023 for the mid-term review of the research progress of ICAR-NIVEDI. Chaired by Dr Baldev R. Gulati, Director, the committee engaged in a comprehensive review of the ongoing research endeavors. To streamline the institute's research activities, the IRC recommended the establishment of four specialized groups *viz.*, the bovine epidemiology group, the small ruminant epidemiology group, the swine epidemiology group, and the disease informatics

and socioeconomics group. Each group is helmed by a functional head, ensuring cohesive coordination within ICAR-NIVEDI's research framework.

The 17th IRC meeting of ICAR-NIVEDI for the year 2022-23 was held on 18th May 2023 under the Chairmanship of Dr. Baldev R. Gulati, Director. Dr S.K. Rana, Consultant, World Bank and former Mission Director, NDLM, DAHD, GoI and Dr Aniket Sanyal, Director, ICAR-NIHSAD participated in the meeting as external experts.

The committee's agenda encompassed a detailed review of the ongoing research projects, both Institute-funded and externally funded. The committee critically assessed the progress of these projects, offering valuable inputs to ensure their success and efficiency. Additionally, group in-charges presented their proposals, outlining the initiation of new group-centric projects. The meeting underscored the institute's commitment to advancing research, innovation, and collaboration in their domain.



IAEC and IBSC Reviewed the Experiment Proposals

The 9th Institutional Biosafety Committee (IBSC) meeting of ICAR-NIVEDI was held on 16th February 2023. The committee reviewed and approved a total of 12 projects involving rDNA and/or handling of biohazard material/agents.



Director (A), and Dr. B.R. Gulati, Director, on the respective dates. The other members present were Dr Mahesh G. Sahare, CCSEA Main Nominee, Dr Mohankumar Shettar, Scientist from outside the Institute, Dr Susan Mini Jason, socially aware Nominee and other IAEC members from ICAR-NIVEDI attended the meeting.

The project proposals involving animal experiments were discussed in details and approved the use of animals for experimental purposes.

On 19th January and 1st March 2023, ICAR-NIVEDI convened the 21st and 22nd meetings of the Institutional Animals Ethics Committee (IAEC). These sessions were chaired by Dr. B.R. Shome,



ITMC recommends NIVEDI technologies for Commercialization

The Institute Technology Management Committee (ITMC) convened meetings on 7th March 2023 and 31st May 2023.



The recommended technologies for ICAR certification included:

Among the key topics discussed was equipment procurement under the ICAR-ABI-NAIF Capital fund. The ITMC gave its nod for the commercialization of several technologies developed by NIVEDI, underlining the institution's commitment to advancing innovation in animal healthcare.

1. **Indirect ELISA:** A tool designed for the population survey of bluetongue.
2. **NADRES V2:** National Animal Disease Referral Expert System.
3. **BT Mobile App:** A mobile application that serves as a forewarning system for Bluetongue.
4. **PPR Ab Check Kit:** The kit identifies PPR virus antibodies in serum of sheep and goats.
5. **Bovine LeptoLAT Kit:** A rapid testing kit to detect Leptospira specific antibodies.
6. **CaDDDES – Web Application:** Known as the Cattle Disease Diagnosis Expert System, it offers expert diagnostics for cattle diseases online.

Agrinnovate Takes up NIVEDI Technologies for Commercialization

On 6th February 2023, the meeting was organized for the techno-commercial evaluation and the formulation of standard terms for various technologies developed by ICAR-NIVEDI. The meeting was attended by Dr. B.R. Gulati, Director of ICAR-NIVEDI, and Dr. Praveen Malik, CEO of Agrinnovate, along with other esteemed Techno-Commercial Assessment (TCA) members.



During the meeting, several innovative technologies were presented and subsequently following technologies received approval for commercialization:

1. Protein-G based Indirect ELISA Kit for Bovine Brucellosis: A diagnostic kit designed

specifically for the detection of Bovine Brucellosis.

2. Indirect ELISA Kit for Sheep and Goat Brucellosis: Targeted for the diagnosis of Brucellosis in sheep and goats.
3. Indirect ELISA Assay for Population Survey of Bluetongue: An essential tool for monitoring and assessing the prevalence of the bluetongue virus.
4. IBR Avidin Biotin ELISA (AB ELISA): A diagnostic kit intended for the detection of Infectious Bovine Rhinotracheitis.
5. Indirect ELISA for Detection of CSFV in Pigs (CSF Ag Check Kit): Specifically designed to detect Classical Swine Fever Virus in pigs.
6. PPR Ab Chek Kit: This includes the PPR Avidin-Biotin recombinant competitive ELISA (PPR ABrC-ELISA), essential for detecting PPR virus antibodies.

The commercialization of these tools is expected to have a significant impact on the broader animal health sector.

Workshop/Trainings Organized

National Workshop on Lumpy Skin Disease (LSD)

ICAR-NIVEDI in collaboration with Indian Virological Society organized one day national workshop titled “Lumpy Skin Disease in India: Current Scenario and Future Challenges” on 27th January 2023. The workshop was inaugurated by Dr B.N. Tripathi, DDG (AS), while addressing the participants, he highlighted the strengths of veterinary infrastructure in India and leveraging the same for effective control and eradication of animal diseases in general and LSD in specific.

Dr R.K. Singh, President, IVS, in his address emphasized the need of networking of Institutes and Scientists working in different aspect of LSD and pointed out that though the number of LSD outbreaks have reduced, but challenges to control and eradicate still exist.

Dr Abhijit Mitra, Animal Husbandry Commissioner, DAHD, GOI in his opening remarks congratulated ICAR-NIVEDI for taking timely initiative of organizing national workshop and emphasized that there is need of deliberations for developing national action plan for control and eradication of Lumpy skin disease in India by the experts on LSD.



Dr B. R. Gulati, Director, ICAR-NIVEDI highlighted the epidemiology of LSD in India, including how the virus entered India, the spatial and temporal patterns, patterns of different waves in India and economic burden of LSD. He also emphasized the need for national control program, post-vaccination monitoring and genomic surveillance of LSD in India. In this workshop other scientists from ICAR-NRCE, Hisar, ICAR-NIHSAD, Bhopal, ICAR-IVRI, Mukteshwar and Bengaluru centers, ICAR-NIANP and ADG (AH) have participated in panel discussions.

Launch of National Action Plan for Surveillance and Monitoring of PPR and Technical Orientation Workshop

The Action plan for Surveillance and Monitoring of PPR in India under PPR Eradication programme, LH & DCP Scheme, GoI was officially launched by Dr. Abhijit Mitra, Animal Husbandry Commissioner, Department of Animal Husbandry and Dairying (DAHD), GoI at ICAR-NIVEDI, Bengaluru on 8th February 2023. A total of 19 participants and project staff attended the event at ICAR-NIVEDI Committee room. Inauguration of the PPR research laboratory by Dr. Abijith Mitra, Animal Husbandry Commissioner, DAHD, GoI. In the presence of Dr. R. K. Singh, Former Director, ICAR-IVRI, Dr. B. R. Gulati, Director, ICAR-NIVEDI and Dr. V. Balamurugan, PI, PPR-EP program.

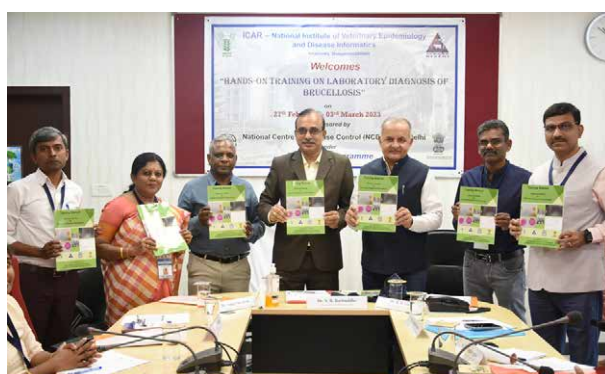
On 20th February 2023, a one-day Technical Orientation Workshop conducted through Online Video Conference for discussion on the Action plan for the Surveillance and Monitoring of PPR in India under PPR Eradication programme, LH & DCP Scheme, GoI was chaired by Dr. R. P. Singh, Director, ICAR-DFMD and Prof. Satya Parida, Vaccine and Laboratory specialist, PPR Secretariate, FAO for UN in the presence of patron Dr. Abhijit Mitra, Animal Husbandry Commissioner, Department of Animal Husbandry and Dairying (DAHD), GoI for strengthening the programme and to discuss issues and challenges to achieve PPR eradication as per timeline.



NCDC-sponsored Hands-on training on Laboratory Diagnosis of Brucellosis

ICAR-NIVEDI organized hands-on training on “Laboratory diagnosis of brucellosis” with the sponsorship of NCDC under the National One Health Programme for Prevention & Control of Zoonoses (NOHPPCZ) during 27th February 2023 to 3rd March 2023. Dr. S. B. Barbuddhe, Director, ICAR-NMRC, Hyderabad graced the inaugural day of the training program, released the laboratory manual and he insisted the need for such training programs for the field level laboratory personnel for rendering their services effectively to the community.

Around 35 medical and veterinary professionals participated in the training program and received hands-on training on various serological (RBPT, STAT, ELISA and LFA) and molecular (PCR, qPCR) tests for diagnosis of brucellosis. The program was coordinated by Dr. V. Balamurugan and Dr. Chethan Kumar HB and the course directors were Dr. Rajeswari Shome and Dr. M. Nagalingam.



NIVEDI Forms Strategic Partnerships to Boost Research & Development Through MoUs

In a move to foster innovative research and strengthen academic ties, ICAR-NIVEDI has inked Memorandums of Understanding (MoUs) with eminent institutes and universities:

Tata Institute for Genetics and Society (TIGS) Bengaluru

TIGS, under the aegis of Tata Trusts, champions the cause of harnessing state-of-the-art science and technology in genetics and genomics to address pressing societal challenges in India. The collaboration between ICAR-NIVEDI and TIGS will focus on the identification of joint opportunities for exchange, cooperation, and mutual research and development in key research areas of shared interest.



Karnataka Veterinary, Animal and Fisheries Sciences University (KVAFSU) Bidar

An MoU was formalized between ICAR-NIVEDI and KVAFSU, Bidar on 2nd May 2023. As per the agreement, KVAFSU, Bidar will officially recognize ICAR-NIVEDI as a research institution for MVSc/PhD student thesis-related endeavours. ICAR-NIVEDI scientists will actively mentor and guide KVAFSU-Bidar students in their research pursuits. Both institutes commit to sharing their research instrumentation and library facilities for the benefit of faculty and research scholars.

Dayananda Sagar University, Bengaluru

The alliance between ICAR-NIVEDI and Dayananda Sagar University was sealed on 06th March 2023. As part of this collaboration, scientists from ICAR-NIVEDI will offer guidance to students at Dayananda Sagar University, assisting them in research pertinent to MVSc/PhD thesis requirements.

Important Events

ICAR-NIVEDI Celebrates Republic Day

ICAR-NIVEDI celebrated 74th republic day of nation by hoisting tricolor in the campus. The important dignitaries participated were Dr. Ashok

Kumar, ADG (AS), ICAR, Dr. Aniket Sanyal, Director, NIHSAD, Bhopal.



Celebration of World Environment Day

On the occasion of world environment day 5th June 2023, the estate section of ICAR-NIVEDI conducted a plantation drive in the campus. More than 1200 saplings of different fruit trees were planted in about 8 acre of land. The Director and all the staff of ICAR-NIVEDI actively participated in the plantation drive.



Celebration of International Women's Day

As part of Celebration of International Women's Day on 10th March 2023, NIVEDI in collaboration with National Animal Disease Control Program (NADCP-Brucellosis Control Program) and Indian Association of Women Veterinarians (IAWV), Karnataka Chapter, organized a one-day Technical Workshop on Empowering Women Veterinarians for tackling emerging diseases with the theme on "DigitALL: Innovation and Technology for Gender Equality."



Outreach Activities

NIVEDI helping the marginalized farmers for Economic Development

On 19th March 2023, NIVEDI distributed Nandidurg goat breed to the most under privileged peoples belonging to Scheduled Caste community of Suthahalli village, Doddaballapur taluk, Bengaluru

Rural district of Karnataka. About 46 beneficiaries got benefited. They were given with 2 female and one male 8 months old goat for breeding programme by the farmers.



Special Livestock Health Camp organized in Tamil Nadu

In a concerted effort to bolster livestock health and awareness in Tamil Nadu, a Special Livestock Health Camp was organized on 7th March 2023 in Ramachandrapuram village, Andipatti Taluk, Theni district. At the camp, livestock were administered the Foot and Mouth Disease vaccine and were provided with deworming medications, ensuring their

overall well-being. In addition, farmers received essential mineral mixtures to enhance the nutritive intake of their animals. Notably, a total of 241 animals, belonging to around fifty SC farmers, received comprehensive healthcare services. Advanced ultrasound sonography was employed to assess cattle for pregnancy and potential infertility issues.

Alongside these health services, the camp also included an educational segment. A training program titled “Scientific Rearing of Farm Animals in Tamil Nadu” was conducted, aiming to enlighten farmers on modern and efficient farming techniques. To supplement this, an informative

lecture on prevalent animal diseases was delivered, particularly benefiting SC farmers in the village. Through these multifaceted efforts, the camp aimed to improve livestock health while empowering local farmers with crucial knowledge and resources.



Human Resource Development

Dr. S.S. Patil, Dr. V. Balamurugan, Dr. Jagadish Hiremath, Dr. P. Krishnamoorthy, and Dr. Shivasharanappa participated in the NABL Assessor’s Training programme for

ISO17025:2017 organized by NABL, New Delhi and ICAR-NIVEDI, Bengaluru held during 6 to 10th February 2023.



Dr. V. Balamurugan, Principal Scientist, participated in the 1st South Asia TADs Coordination Meeting of GF-TADs for Asia and the Pacific, as PPR expert

held in Paro, Bhutan, organized by the FAO and WOA, during 8-9th May 2023.



Patents and Copyrights

The patent no. 419435 “Recombinant non-structural proteins NS1 and NS3 as fusion protein (rNS1-NS3) based immuno- diagnostic assay for bluetongue” (Inventors: Divakar Hemadri, Nihar Nalini Mohanty and Sathish Bhadravati Shivachandra) was granted on 27th January 2023.

The copyrights on “Cattle disease diagnosis expert system – web application CaDDES” (Authors:

Krishnamoorthy P, K P Suresh, Dheeraj Ramesh, Dharshan H V, Parimal Roy) and “Epidemiological calculator (EPI CAL) Web Application” (Authors: K P Suresh, Mohan Kumar G S) were registered on 6th Feb. 2023 and 9th Feb. 2023 with registration number SW-15961/2023 and SW-16034/2023 respectively were obtained.

NaaViC ABI at ICAR-NIVEDI: Leading the Revolution in Agri-Entrepreneurship!

In a ground-breaking series of initiatives, NaaViC, the Agri-Business Incubator at ICAR-NIVEDI, has emerged as the cornerstone for nurturing and mentoring budding agri-preneurs. Dedicated to empowering idea-stage and MVP stage start-ups, the team at NaaViC seamlessly melds focused mentoring with innovative technologies.

Spotlight Initiatives:

- Launch of “Sustainable Agriculture” targeting Horticulture FPOs and “Millets for Food and Nutritional Security” for the students of Maharani Lakshmi Ammanni College for Women (MLAC).
- Hosting of 11 international ministerial delegates to delve deep into Animal Husbandry and the thriving start-up ecosystem.
- A two-day farmer training focusing on entrepreneurial opportunities in sheep and goat farming.
- Virtual training for 60+ faculties, ensuring a nation-wide outreach.

Exhibitions & Engagements: Team NaaViC showcased its prowess at the State-level veterinarian workshop and the National Horticulture Fair (NHF) 2023. Moreover, they welcomed start-ups during a pivotal Post-budget webinar inaugurated by the Prime Minister.

Collaborations: With an aim to expand the horizons of the agri-startup ecosystem, MoUs were signed

with Sri Siddhartha Institute of Technology, Tumkur, and Kalpatru Institute of Technology, Tiptur.

On the Horizon: The call for business proposals under the NEO and NEST programs for the 8th Cohort has been amplified through various platforms, promising a brighter future for aspiring agri-preneurs.



Organization of one day training program on IPR Copyrights and Compliances, in collaboration with the IP&TM unit, ICAR.



Inauguration of two days collaborative farmers training program on entrepreneurial opportunities in sheep and goat farming at Veterinary College, Shivmogga.

Awards/Recognitions

Animal Husbandry Commissioner inaugurated the WOAH reference PPR laboratory

During launch programme of Action plan for Surveillance and Monitoring of PPR in India under PPR Eradication programme, LH & DCP Scheme, GoI on 8th February 2023 the Animal Husbandry Commissioner inaugurated the WOAH reference PPR laboratory.



Director, ICAR-NIVEDI conferred with fellow of IAVMI

In recognition of significant contributions for the advancement of Veterinary Microbiology, Dr B.R. Gulati, Director, ICAR-NIVEDI has been admitted as Fellow of Indian Association of Veterinary Microbiologists, Immunologists, and Specialists in Infectious Disease at 35th National conference held on 7 to 8th April 2023, SCK HPKV, Palampur (HP)



Superannuation/Transferred

Dr. B.R. Shome, Principal Scientist, superannuated on 31st January 2023 after completion of a successful service of 31 years in ICAR. He served in many institutes like ICAR-CIARI,

Port Blair, ICAR-RC-NEH, Barapani and finally ICAR-NIVEDI, Bengaluru. The NIVEDI family wishes him a very happy, healthy and peaceful retired life.



Mr. A Vijaya Kumar, AF&AO relieved from this office on 31st May 2023(AN)

upon promotion as F&AO to join at ICAR-IOPR, Pedavegi.



Distinguished Visitors

1. Dr M.D. Venkatesh, Director, Institute of Animal Health and Veterinary Biologicals (IAH&VB), Bangalore visited as part of OHAI Annual Review Meeting on 22nd to 23rd May 2023
2. Dr Rakesh Bhatnagar, Director, DIVACC Research Laboratories Private Limited, New Delhi visited as part of OHAI Annual Review Meeting on 22nd to 23rd May 2023
3. Dr Vivek Kapur, Professor, Microbiology and Infectious Diseases, Penn State (PSU), USA, visited as part of OHAI Annual Review Meeting on 22nd to 23rd May 2023
4. Dr Shah Hossain, Regional Coordinator, CisGEN, Chennai, visited as part of OHAI Annual Review Meeting on 22nd to 23rd May 2023
5. Dr Mohan Papanna, Assistant Research Professor of Global Health, Huck Institutes of the Life Sciences, Pennsylvania State University, USA, visited as part of OHAI Annual Review Meeting on 22nd to 23rd May 2023
6. Dr. Habibar Rahman, Regional Representative for South Asia, International Livestock Research Institute, New Delhi on 17th February 2023
7. Dr S.B. Barbuddhe, Director, ICAR- National Meat Research Institute, Hyderabad visited as part of Hands on Training on Laboratory Diagnosis of Brucellosis on 27th February 2023
8. Dr Manjunath. S. Palegar, Director, Department of AH&VS, Govt. of Karnataka visited ICAR-NIVEDI as part of One day technical workshop on “Empowering women veterinarians for tackling emerging diseases” on 10th March 2023

Forthcoming Events

1. An international training titled “Epidemiological approaches to prevent and control transboundary animal diseases with special focus on Zoonotic diseases and foot and mouth disease” from 3rd to 12th October 2023. The training will be jointly organized by ICAR-NIVEDI and ICAR-NIFMD for the veterinary and medical professionals of BIMSTEC countries.
2. The Peste des Petits Ruminants Global Research and Expertise Network (PPR-GREN) 6th Annual Meeting will be hosted by ICAR-NIVEDI in collaboration with WOAHA & FAO at Bengaluru during 28th to 30th November 2023.

Concept and Guidance

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