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**F.No. AS/2/3/2022 ASR IV(efile 221011)**
**Dated: 21 February, 2023**

**To**

**Dr. Baldev Raj Gulati,**
**Director**
**ICAR-National Institute of Veterinary Epidemiology and Disease Informatics (NIVEDI)**
**Bengalore-560064.**

**Sub.: Proceedings of National Workshop on "Lumpy Skin Disease in India" : Current Scenario and Future Challenges" held on 27th January, 2023 at ICAR-NIVEDI, Bengaluru-approval reg.**

Sir,

This has reference to your email dated 20/1/2023 on the subject mentioned above. Approval of the Competent Authority is hereby conveyed on the proceedings of National Workshop on "Lumpy Skin Disease in India" : Current Scenario and Future Challenges" held on 27th January, 2023 at ICAR-NIVEDI, Bengaluru. Please circulate the proceedings to all concerned.

This issues with the approval of Deputy Director General (AS), ICAR.

Yours faithfully,

21/02/2023

**(Jyoti Misri)**

**Encl: Approved Proceedings**

**Copy to :**

1. PPS to DDG (AS), ICAR, Krishi Bhawan, New Delhi.
2. GUARD File

**Proceedings of National Workshop on "Lumpy Skin Disease in India: Current Scenario and Future Challenges" held on 27th January, 2023 at ICAR-NIVEDI, Bengaluru**

ICAR-National Institute of Veterinary Epidemiology and Disease Informatics (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 at ICAR-NIVEDI, Bengaluru. The workshop was organized with the objectives of deliberations for developing national action plan for control and eradication of Lumpy skin disease in India by the experts on LSD.

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. He expressed concerns that in spite of knowing the possible incursion of LSD and ASF from neighbouring countries, enough was not done to prevent its spread in the country. He desired that the current workshop should discuss and deliberate the existing knowledge regarding LSD and come out with action plan for control and eradication of LSD. He further emphasized that the scientists should embark on innovative methods to solve the emerging issues in the field of vaccinology. He emphasized the need to take up studies to generate basic data on immunology of LSDV and studies on mutations and recombinations.

The workshop began with opening remarks of Dr. R. K. Singh, President, IVS. In his address Dr. Singh 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. While sharing the data on current situation of LSD in the country he sought scientific inputs for field observations like: Why clinical presentation of the disease is changing, homologous versus heterologous vaccination and risk of reversal of vaccine strain to virulent form and differentiation of vaccine strain from field virus strain.

The workshop was conducted in 2 sessions. In the first session, technical experts from different fields presented the status of LSD in the country and progress made in the development of diagnostics, vaccines, epidemiology and disease informatics and the challenges being faced.

The first session began under the Chairmanship of Dr R K Singh, President IVS and former Director of IVRI, Izatnagar. Dr. A. Sanyal, Director, ICAR-NIHSAD, Bhopal and Dr. B. R. Gulati, Director, ICAR-NIVEDI, Bengaluru co-chaired the session, while Dr. Jagadish Hiremath and Dr. Sivasharanappa were the rapporteurs. A total of five topics covering the epidemiology, virology, vaccination and control strategies, diagnosis, vaccine production and regional perspectives of LSD was presented by the experts in respective field as shown below.

Dr. B. R. Gulati, Director, ICAR-NIVEDI highlighted the different aspects of epidemiology of LSD in India like how the virus entered India, what is its global status in terms of spatial and temporal patterns, modes of transmissions, patterns of different waves in India, risk factors, economic losses based on pilot study for the state of Rajasthan, control and preventive measures, need for national control program, postvaccination monitoring, genomic surveillance, etc.

Dr. Naveen Kumar, Principal Scientist from ICAR-NRCE, Hisar in his topic on vaccination and control strategies shared success of development of homologous LSD vaccine including immunity studies, feed back on indigenous LSD vaccine from stakeholders, need for vaccine quality control, challenges in differentiation of infected versus vaccinated animals.

Dr. S. Kilari from Biovet Pvt Ltd. Malur, Karnataka expressed his views on industry perspective like need for early collaboration during the development of vaccines for generating data which can be directly used for statuary approvals, authentication of cell lines and animal origin research materials, challenges in scaling up of research outputs from research institutes/organizations, optimizing the antigen (immunogen) requirement in vaccines, stabilization of virus titres, quality control, need for reversal studies, challenge studies with heterologous viruses like goat pox, etc.,

Dr. Niranjan Mishra, Principal Scientist, ICAR-NIHSAD, Bhopal in his talk highlighted diagnostic services extended by NIHSAD being the countries referral lab, merits and demerits of various diagnostic tests for LSD including the serological tests., decentralization of diagnostic referral labs, etc.,

Dr. Y. P. S. Mallik, Secretary General of IVS and Dean, College of Animal Biotechnology, GADVASU, Ludhiana elaborated LSD outbreaks and current status in Punjab. Dr Mallik also highlighted the roles and contributions of IVS in terms of dissemination of knowledge on recent trends in virology by organizing various types of conference, webinars, workshops, etc.

Dr. Amit Kumar, Scientist from ICAR-IVRI, Mukteswar in his talk on Emergence of LSDV: Virological perspective gave details about virus structure, genome, strains circulating at local and global, methods of virus isolation, need for the development of immunodiagnostics etc.,

In the second session, panel discussions were held on way forward for the challenges being faced for control a\of LSD in the county and also deliberated on road map to make the India free of LSDV. The panel discussion was chaired by Dr. Raghavendra Bhatta, Director, ICAR-NIANP, Bengaluru and was co-chaired by Dr. Pallab Chaudhary, Joint Director, ICAR-IVRI, Bengaluru. The panelists included Dr. Aniket Sanyal, Director, ICAR-NIHSAD, Bhopal, Dr. B. R. Gulati, Director, ICAR-NIVEDI, Bengaluru, Dr. Y. P. S. Mallik, GADVASU, Ludhiana, Dr. S. Khilari, Biovet Pvt Ltd. Malur, Karnataka, Dr. Niranjana Mishra, ICAR-NIHSAD, Bhopal, Dr. Naveen Kumar, NRCE, Hisar, Dr. Amit Kumar, ICAR-IVRI, Mukteswar, Dr. Ashok Kumar, ADG (AH). During the panel discussions, deliberations were made on various topics of LSD and recommendations were made (Annexure-I). The workshop ended with vote of thanks from organizing team (Dr. Hemadri and Dr. Manjunatha Reddy GB).

Annexure-I

**Recommendations made in the National Workshop on "Lumpy Skin Disease in India: Current Scenario and Future Challenges" held on 27th January, 2023 at ICAR-NIVEDI, Bengaluru**

I. Vaccination

- **Vaccination policy:** Ensure high quality and safety standards for vaccine intended for LSD prevention and also ensure 90% vaccination coverage by mass vaccination in nationwide campaign similar to pulse polio campaign and to include LSD under National Animal Disease Control Program (NADCP)
- **Vaccine immunity:** The studies on duration of immunity conferred by the currently used goat pox vaccine needs to be documented. Suitable methods to estimate the cell mediated immunity need to be identified and tests to estimate the same needs to be developed.
- **Risk of reversion to virulence and recombination:** The country has developed a live attenuated homologous LSDV vaccine. Studies may be taken up to rule out the risk of reversion of the vaccine virus to virulent virus and possibility of recombination of vaccine virus with field virus strain.

II. Diagnosis and Surveillance

- **Serological and DIVA tests:** Since many animals infected with LSDV may not show symptoms but develop antibodies, it is essential to have a serological test to differentiate the antibodies due to infection and vaccination. Currently DIVA based serological testes are not available in the country. Therefore, serological and DIVA tests to be developed for sero-monitoring and surveillance purpose. Biosafe kit for sero-surveillance post eradiation phase.
- **Surveillance strategies:** There is need for development of surveillance strategies in terms of host, pathogen and environment (vectors) both at the state and the national level. ICAR-NIVEDI may help in developing surveillance plans.
- **Post vaccination surveillance (PSV):** There is need to monitor the ongoing vaccination in terms of level of protection and duration of immunity through design of PSV. The need of booster vaccination may be worked out based on the data.
- **Genomic surveillance for recombinations:** All the experts are of opinion that there is strong need for country wide strong network project on genomic surveillance with proper funding similar to COVID-19 network (INSACOG) in human sector, with a view to monitor emergence of new recombinants following homologous vaccination.

III. Risk factors and biosecurity:

- **Vector biology/ studies:** Although several groups of arthropods have been suspected to play a role as vectors of LSDV, the species of vectors, their vectorial capacity and competence, transmission dynamics and the fate of LSDV inside the vectors has not been studied. Hence, research on this aspect should be initiated.
- **Biosecurity:** Since LSD and other diseases can spread to distant places through movement of animals, humans, vehicles, vectors, etc, it is utmost important to create awareness and train the farmers, workers, traders, veterinarians on farm level biosecurity.
- **PRA studies:** There is need to involve the social scientist for dissemination and creating disease awareness including the vaccination and identification of farmer's or stakeholder-oriented researchable areas.

IV. National Action plan:

- **Impact studies:** Since LSD can result in high morbidity, mortality and production losses, the economic burden resulting from LSD on livestock sector needs to be studied on urgent basis.
- **National action plan for control of LSD:** The major objective of this workshop was to formulate a draft national action plan for the control and eradication of LSD from the country by 2030. Accordingly, based on the recommendation and deliberation of the experts during the workshop a draft national action plan may be formulated in consultation with DAHD.
- **Exit strategy:** Once the national actional plan for control of LSD is implemented, there is need for design of exit strategy as per the international standards for making the country free of LSD in future.