MOST URGENT
TOP PRIORITY

Directorate General (Research)
Livestock & Dairy Development Department
Zarrar Shaheed Road Lahore Cantt

No. **936** / 12.I.E Dated: **28.03.2025**

To,

1. The Director General (Extension)
   L&DD Department Punjab, Lahore.
2. The Director General (E,R,P)
   Livestock South Punjab, Bahawalpur.

SUBJECT: **ALERT: LUMPY SKIN DISEASE (LSD)**

It is to share that few cases of lumpy skin disease (LSD) have been reported in Moro and Naushahro Feroze region Sindh Province on 25.03.2025, which have been verified from Director General Livestock, Government of Sindh. Your office is well aware of the previous emergence of the LSD in Punjab during March 2022, following outbreaks in Sindh in November, 2021, and the economic losses in terms of animal productivity, damages to skin & hides etc. Thus, there is severe risk / threat of re-emergence of the LSD in Punjab to the livestock population in Punjab province.

2. Keeping in view the threat and associated risks, you are hereby requested to enhance the vigilance especially on the interprovincial borders to monitor the animal movement. The disease reporting officer working under your control be directed to report immediately the suspected or clinical case of the LSD on ADRSinfo system. Also, the field staff be advised to increase the awareness activities among the livestock farmers and growers regarding LSD threats, its risks, biosecurity and control measures using all extension and communications tools.

3. The comprehensive guidelines for the LSD preventions and control are enclosed herewith for circulations among the field staff and livestock farmers.

DIRECTOR GENERAL (RESEARCH)

CC.

1. The Secretary, L&DD Department, Govt. of the Punjab, Lahore.
2. The Additional Secretary (Technical) L&DD Department, Govt. of the Punjab, Lahore.
3. The Director General (Production) L&DD Punjab, Lahore.
4. The Director, Veterinary Research Institute, Lahore.
5. The Director, ADDRS Lahore, he is advised to circulate among all DICOs and ADIOs working in Punjab to get preparedness for early detection, response and prevention of LSD. The diagnostic kits be available at provincial lab Lahore.

Annexure-A

GUIDELINES ON LUMPY SKIN DISEASE (LSD) CONTROL IN PUNJAB 2025

A. Lumpy Skin Disease (LSD) is a highly contagious viral disease affecting cattle and buffaloes leading to high economic losses.

The LSD virus is a member of the capripox genus, poxviridae family, is primarily transmitted through biting insects such as mosquitoes, flies, and ticks, as well as direct contact with infected animals. LSD leads to skin nodules, high fever (41°C), swollen lymph nodes, and a significant drop in milk production.

B. Disease History in Punjab:

The LSD reported 1st time in November 2021 and in Punjab in March 2022 influencing huge economic losses due to mortality, decreased milk production, infertility and damage to hides. The detail of animal losses due to LSD in Punjab in 2022 is as under:

- Total number of reported cases during 2022-23 is 62025
- 4656 deaths.

C. Control Measure Taken

Following measures were taken to control LSD spread in Punjab:-

1. Notification of Core Team for LSD
2. Establishment of Disease Emergency Cell.
3. Enhancing Vaccine Production and Cold chain Capacity
4. Developing SOPs for handling and control of LSD
5. Capacity building of service Provider
6. Awareness Campaign

Keeping in view the re-emergence of LSD cases in district Moro and Noshehro Feroz officially confirmed from the DG Livestock, Govt. of Sind following guidelines are hereby advised for the preparedness and to control of the forthcoming LSD threat to the livestock population of Punjab. Following guidelines are hereby issued for the control of LSD in Punjab:-

1. Public Health Concern:

i. Lumpy Skin disease (LSD) has no public health implications being non zoonotic in nature.

ii. Skeletal muscles (meat without bone), casings, gelatin and collagen, tallow, hooves and horns are safe commodities as far as transmission of virus is concerned through these products.
iii. Milk is safe for human consumption after boiling.

2. Source of Virus:

i. Skin nodules, scabs and crusts contain relatively high amounts of LSDV. Virus can be isolated from this material for up to 35 days and likely for longer.
ii. LSDV can be isolated from blood, saliva, ocular and nasal discharge, milk and semen.
iii. LSDV is found in the blood (viraemia) intermittently from approximately 7 to 21 days post infection at lower levels than present in skin nodules
iv. LSDV has been isolated from the semen of infected bull 42 days post-inoculation.
v. There is single evidence of placental transmission of LSD, so far.

3. Transmission:

i. The principal means of transmission is by arthropod vector. Mosquitoes, biting flies and ticks could play a role in the transmission of the virus.
ii. Infected bulls can excrete the virus in the semen however; disease transmission throughsemen is not yet proved.
iii. Transmission via fomites (ingestion of feed and water contaminated with infected saliva, equipment and utensils etc.) is not proved.
iv. Direct contact is considered to play a minor role in the transmission of the virus

4. Clinical Diagnosis:

i. High fever that may exceed 41°C.
ii. Development of cutaneous nodules 2-5 cm in diameter particularly on the head, neck, limbs,udder, genitalia and perineum within 48 hours of onset of the febrile reaction. Thesenodules are circumscribed, firm, round and raised, and involve the skin, subcutaneoustissue and sometimes even the underlying muscles.
iii. Large nodules may become necrotic and eventually fibrotic and persist for several months, the scars may remain indefinitely. Small nodules may resolve spontaneously without consequences.
iv. Enlarged superficial lymph nodes
v. Myiasis of the nodules may occur Vesicles, erosions and ulcers may develop in the mucous membranes of the mouth and alimentary tract and in the trachea and lungs.
vi. Limbs and other ventral parts of the body, such as the dewlap, brisket, scrotum and vulva, may be edematous, causing the animal to be reluctant to move.
vii. Bulls may become permanently or temporarily infertile.
viii. Pregnant cows may abort and be in anestrus for several months.

ix. Depression, anorexia and emaciation.
x. Rhinitis, conjunctivitis and excessive salivation.

If an animal shows a fever exceeding 41°C, collect a blood or serum sample for testing.Nodules ranging from 2–5 cm in diameter, particularly on the head, neck, limbs, udder, genitalia, and perineum, should be examined. Collect skin scrapings, scabs or biopsy samples from the nodules for laboratory analysis.

5. Sampling Guidelines for LSD sample collection:

Preferred sample for LSD virus detection

- For LSD virus detection collect skin lesions, scabs and other tissue, suitable for viral DNA detection and virus isolation, bull saliva and nasal swab are easy to collect for PCR Testing
- Collect blood in EDTA for PCR Testing and in heparin for virus isolation
- Collect serum samples for antibody detection through ELISA and for serum/virus neutralization

Advice for sampling team

- Use protective clothing to ensure biosecurity
- Work aseptically avoiding cross contamination between samples, disinfect the sample collection site
- Change needle, scalpel and gloves between animals.
- Restrain the animal safely or sedate to avoid stress or injury to the animal and causing the danger to the operator

Sampling Procedure

- Separate the suspected cases
- If several animals are showing clinical signs, collect at least five samples
- Take duplicate samples
- Samples must be labeled properly with water proof markers
- Organize the transport of samples to the reference lab without any delay
- Maintain cold chain in order to preserve sample quality
- Inform the laboratory prior to sending samples and inform that samples are potentiallycontaminated with LSD virus infection

When to collect the sample? Diagnostic Window

- Collect the sample at early stages to nave high likelihood of detesting LSD Virus, preferably when animal is pyrexic
- **For live virus** Collect, skin lesions, scabs or heparin blood before the development of neutralizing antibodies
- **Viral DNA** can be detected in scabs and skin lesions through PCR for several months post infection
- Antibodies can be detected about 14-20 days post infection

Table 1: Persistence of LDS in Different type of samples

Live virus can be detected	Time
Skin Nodules	39 Days
Dried Scabs	Several years if kept at 20
Blood	5-16 Days
Saliva and nasal discharge	At least 21 days
Semen	22 days
Milk, Eye Discharge, Urine and Feces	Duration of infectivity is not known

Materials Required:

- Blood for PCR in EDTA Tubes (Purple Cap)
- Blood for Cell culture in Heparin tubes (Green Cap)
- Blood for antibodies in plain tubes (Red Cap)
- Scalpel, local anesthetic, transport media
- Several transport media are commercially available
- 10-20% glycerol in phosphate buffered saline for PCR and Virus isolation

Collecting blood samples

- Clean the sample collection site with 70% ethanol and let the area dry.
- Collect blood from jugular vein or tail vein aseptic
- Mix the sample gently immediately after collection.
- For serum samples keep the blood samples at ambient temperature for 2 hours to coagula

Collecting Saliva ocular and nasal swabs

- Plain sterile swabs should be used
- Samples should be collected and swab should be placed in viral transport medium
- Swabs can be stored upto 48 hours at 2-BC

Collecting skin samples

- Prepare the sampling site aseptically, give local anesthesia
- Whole thickness skin sample should be collected using scalpel
- Collect the sample in transport media

6. Lab Testing:

The most reliable method for detecting LSDV is PCR that amplifies viral DNA from blood, skin lesions, or other tissue samples, confirming the presence of the virus. To detect antibodies against LSDV in the blood of infected animals the ELISA test can be used. The Provincial Diagnostic Lab Lahore is well equipped for the diagnosis of LSD through PCR and detection of antibodies through ELISA test. The district labs staff is well trained to handle LSD outbreaks and sample collection.

7. **Prevention and Control / Bio-Security :**

i. The most effective control method is vaccination with homologus vaccinal strain that helps in reducing morbidity and prevents further spread.

ii. To control the insects on farms use of insecticides, insect repellents, and minimizing standing water that may serve as breeding grounds for mosquitoes.

iii. Restricting animal movement from infected areas is essential to prevent the spread of the virus. Animals should only be moved if they are vaccinated and have passed a minimum quarantine period (usually 28 days after vaccination).

iv. Regular surveillance of animals for any symptoms of LSD, such as lumps on the skin, fever, or discharge from the eyes and nose, is important for early detection.

v. Isolation of infected animals: Infected animals should be immediately isolated from healthy ones to prevent further transmission.

vi. Disinfect the equipment, vehicles, and facilities regularly, especially those used for the transportation or handling of animals.

vii. As there is no specific cure for LSD, symptomatic treatment such as administering anti-inflammatory drugs, antibiotics (for secondary infections), and supportive care (fluids, nutrition) can help affected animals recover.

8. **Awareness**

i. Educating livestock owners on animal movement, separation of disease animals form other animals and how to recognize, report and control LSD outbreaks, through farmers meetings by the concerned ADIO/ VO.

ii. The farmer should be given training on report of disease through ADRS farmer android application and to contact the helpline number 0800-09211 for emergency assistance.

9. **Disease Reporting**

The department has started ADRS-info a virtual disease reporting and surveillance system throughout the Punjab. The android applications are available on Google play store. There are three apps for convenience.

1. ADRS Farmers, for use of farmers for disease reporting.
2. ADRS-VA for use of Veterinary Assistant and AITs for disease reporting
3. ADRS-RO for the field officers and the lab officers for disease reporting, verification, sample collection and lab test results.

The apps are available for download on the Google Play Store. For assistance with installation and registration, the Assistant Disease Investigation Officer (ADIO) of concerned district can be contacted.