

K-11053/69/2019-LH

DEPARTMENT OF ANIMAL HUSBANDRY & DAIRYING

GUIDELINES FOR PREVENTION OF LSD (LUMPY SKIN DISEASE)

(Version 3.0, Date: 26/09/2022)

1. **Movement control of animals:** In order to minimize the economic impact of the outbreaks and to control LSD, the movement of animals to and from the infected area should be completely banned. This will check the transmission/spread of LSD. Affected states shall communicate with neighboring non-affected states and share control and risk strategies to ensure that infection do not enter the non-affected states
2. **Restriction to be enforced with affected animals and the persons dealing with infected animals:** Movement of people to and from the affected area should be restricted. The animal handlers and those attending to the affected animals should be advised to keep away from healthy animals. It is therefore, of utmost importance to ensure these safety measures
3. **Vaccination**

The vaccination strategy for carpet/preventive vaccination and controlled epicentre vaccination is as under:

A. CARPET VACCINATION/PREVENTIVE VACCINATION IN NON-AFFECTED AREA

1. Priority should be given to high risk areas like border area of affected district and states
2. Priority to cattle as presently most affected.
3. Buffaloes need not to be vaccinated at this stage. Buffaloes shall be protected by adopting strict biosecurity measures like isolation from affected cattle, regular disinfection and vector control in the area, provision of nutritional feed and fodder, regular veterinary supervision and care.

4. Eligible and healthy susceptible cattle at the age of 4 months and above should be vaccinated through S/C route with available Goat pox vaccine- Uttarkashi Strain. The dose of $10^{3.0}$ TCID₅₀ (same dose of vaccine for goat against goat pox) can be used for carpet /preventive vaccination in cattle.
5. Affected animals should not be vaccinated and (if found during vaccination) shall be isolated immediately with further laboratory confirmation and epicentre vaccination strategy shall be followed as per **para B** below.
6. All eligible non-affected apparently healthy animals shall be vaccinated after proper clinical examination. May also be covered under annual re-vaccination if remain healthy.
7. Calves from vaccinated animals or naturally infected mothers should be vaccinated at the age of 4 to 6 months. Calves from unvaccinated mothers can be vaccinated at any age.
8. Newly purchased animals should be vaccinated 28 days before the introduction to the herd.
9. Animals should be vaccinated 28 days before the transport or movement to another place (wherever permitted).
10. Same dosage and protocol should be applied to domestic buffaloes as for cattle (whenever permitted).
11. Pregnant, healthy cows / heifer can be safely vaccinated.

B. CONTROL VACCINATION IN AFFECTED AREA/EPICENTER

1. The infected village/area/premises/farm/house shall be identified with animal population profile and assessment of other requirement for control and containment of the disease
2. Affected animals shall be identified and isolated immediately away from healthy/ non-affected animals.
3. Affected animals shall not be vaccinated.
4. Priority to cattle as presently most affected.
5. Buffaloes need not to be vaccinated at this stage. Buffaloes shall be protected by adopting strict biosecurity measures like isolation from affected cattle, regular disinfection and vector control in the area, movement control from the infected area and providing nutritional feed and fodder and regular veterinary care.
6. **Vaccination Planning:**
 - a) Control vaccination shall start first from the border of the epicentre (outside to inside strategy)

- b) The affected premises/animal farm/house shall be strictly monitored with implementation of strict biosecurity measures as per the control guidelines.
- c) The affected animal/s shall be isolated (quarantined) under veterinary care and supervision till recovered.
- d) Affected animals shall not be vaccinated.
- e) Eligible susceptible healthy cattle at the age of 4 months and above should be vaccinated through S/C route with available Goatpox vaccine- Uttarkashi Strain. The dose of $10^{3.0}$ TCID₅₀ (same dose of vaccine for goat against goat pox) can be used.
- f) Animals already vaccinated shall not be re-vaccinated. However, annual vaccination (after 1 year) may be given
- g) Animals recovered from LSD shall not be vaccinated. However, may be covered under annual vaccination if remain healthy.
- h) All eligible non-affected apparently healthy animals shall be vaccinated after proper clinical examination. May also be covered under annual re-vaccination if remain healthy.
- i) Calves from vaccinated animals or naturally infected mothers should be vaccinated at the age of 4 to 6 months. Calves from unvaccinated mothers can be vaccinated at any age.
- j) Newly purchased animals should be vaccinated 28 days before the introduction to the herd.
- k) Animals should be vaccinated 28 days before the transport or movement to another place (wherever permitted).
- l) Same dosage and protocol should be applied to domestic buffaloes as for cattle (whenever permitted).
- m) Pregnant, healthy cows / heifer can be safely vaccinated.

C. OTHER MEASURES FOR SAFE AND EFFECTIVE VACCINATION

1. Vaccinated animals shall be identified and monitored with tag numbers or without tag numbers with proper documentation
2. The staff and vaccinators should be trained for vaccination drive including storage and preparation of vaccine, dosing and injection and identification of animals
3. Use of fresh disposable needle and syringe every time for vaccination of new animal shall be ensured
4. Separate teams should undertake control vaccination in epicentre and the staff, vehicle, instrument etc. shall not be allowed to enter from affected area to clean/non-affected area.
5. At the same time, fogging and disinfection of vaccinated area shall be ensured and documented along with other biosecurity measures as per the control guidelines.

4. Bio-security measures:

- Isolation of sick animal from the healthy animals
- Clinical surveillance against LSD in affected districts and around surrounding villages should be intensified
- The buffaloes should be kept separately till complete recovery of the affected animals, if reared together. Ensure proper biosecurity measures for buffaloes to prevent any possible disease threat from affected cattle
- Disinfection of premises at regular intervals
- Ecto-parasiticide should also be applied to healthy animals on the infected and on surrounding farms
- The persons dealing with the infected animal should wear gloves and face mask
- Care should be taken to report any unusual sickness of other animals to nearest veterinary Hospital/Dispensary
- Hygiene practices should be followed at the animal farm and by the people in area where animals are infected
- Farms with affected animals should be visited regularly by the field veterinarians until all the cases are recovered. The veterinary staff should take all precautionary hygiene measures to avoid further spread of disease to other farms/households
- In case of mortality, carcass should be disposed of by deep burial method observing all hygienic measures
- Cattle markets located within 10 km radius of the epicentre of infection should be closed
- Trade of live cattle, participation in fairs, shows should be banned immediately upon confirmation of the disease in the affected areas

5. Vector control: Control of vector population in the area, premises and the animal body should be carried out using the insecticide, repellents and other chemical agents.

- 6. Disinfection and cleaning measures:** Affected Premises, vehicles plying through the affected animal holdings should be carried out with appropriate chemicals / disinfectants [Ether (20%), chloroform, formalin (1%), phenol (2% /15 minutes), sodium hypochlorite (2-3%), iodine compounds (1:33 dilution) and quaternary ammonium compounds (0.5%)].
- 7. Guidelines for Sample Collection and Dispatch for Diagnosis and surveillance of Lumpy Skin Disease (LSD) for testing at ICAR-NIHSAD, Bhopal:** Format, guidelines including general and transport guidelines may be seen at ICAR-NIHSAD, Bhopal website http://www.nihsad.nic.in/pdf/LSD_%20REVISED%20Guidelines%20for%20Sample%20Collection%20and%20Dispatch%20for%20Diagnosis%20of%20Lumpy%20Skin%20Disease.pdf
- 8. Awareness programme:** Mass awareness campaign to be taken up to make the public aware of the disease and report to the veterinary authority immediately when suspected cases are detected. This will help in prevention and control of LSD.
Awareness to animal owners and other stake holders to identify the suspected animals at an early stage by observing initial signs like off feed, dullness, fever and inform to local veterinarian for immediate isolation and treatment of suspected animals and to control the infection at early stage before disease become severe.
Development of SOPs/DOs and DONTs and training material in local language as per guidelines for effective awareness to all stake holders and VOs and to conduct regular trainings. State may explore the possibility to involve local animal owners, panchayat members, Pradhans, NGOs, local youth in awareness programmes
- 9. Establishing proper and effective communication with local veterinary colleges for support in control and containment operations**
- 10. Formation of RRTs and trainers for immediate response for control and containment and awareness.**

11.Related suggestions:

- a) Strict implementation of advisories. Rapid Action Teams should be deployed in the affected areas.
- b) Strict implementation of bio-security measures including disinfection drives and carcass disposal in cooperation with local authorities including municipal authorities. The possibility of using state/district emergency funds may also be explored.
- c) Movement restriction and isolation of affected animals. Establishment of isolation centers with veterinary care for affected animals
- d) Movement control of vehicle, animals from affected area to free area.
- e) Disinfection measures to be followed strictly in liaison with Municipal bodies and administration including regular fogging and lime spray in the infected and surrounding area.
- f) Stray animals to be monitored regularly and the affected animals should be isolated under veterinary care with the help of municipal and administrative authorities.
- g) Waste disposal including feed, fodder and dead animal to be followed as per protocol and scientific method with marking and displayed safety guidelines.
- h) Animal movement from affected area to be monitored to prevent spread of the infection. Buffaloes may be transported from non-infected areas with routine health certificate, however, from the infected areas, the buffaloes should be inspected for clinical signs by a veterinarian (no animal with clinical sign should be allowed for movement, even if mild symptoms are noticed),

accompanied with a recent health certificate and preferably be tested negative by PCR before transportation

- i) Animal trade and fare should not be allowed in the affected area.
- j) Vehicle passing through the infected area should be monitored and disinfected. Check post should be made active at border roads and bridges to control the entry of affected animals from affected states and districts.
- k) Insecticides spray and fogging to be undertaken in the animal sheds, common grazing area, veterinary hospital and dispensaries, animal gathering spots and animal movement tracks to control vectors like mosquito, flies, ticks, fleas etc.
- l) Surveillance of vector should also be undertaken by sending the samples to ICAR-NIHSAD to understand disease epidemiology and accordingly making control strategies.
- m) Monitoring of pastures, grazing area, water bodies, feed and fodder to prevent contamination by infected animal.
- n) Infected feed, fodder and bedding material should not be used and disposed scientifically.
- o) Infected animals should be kept separately in isolation with close monitoring till recovered and should not be kept in same animal shed. The milk of infected animals should not be used and mixed in the milk of healthy animals.
- p) Unnecessary post-mortem and sampling of infected animals should be avoided so that disease may not spread during such operations. The staff should wear all preventive gears during PM and sampling.

- q) The sampling should be done as per the prescribed SOP and protocol with due care at all times and proper and safe transport shall be ensured. Sampling should only be done by expert personnel by the veterinarian or under veterinary supervision.
- r) Except in unavoidable circumstances, the treatment of infected animal should be done through oral medication and topical application to avoid spreading of disease through treatment procedures and contamination of treatment accessories and personnel during treatment.
- s) The veterinary hospitals and dispensaries should have proper supply of medicines, supplements, disinfectants, treatment accessories, foggers, awareness material PPE kits and other related items at all times.
- t) Control room and 24x7 toll free number to be activated to address the issues of farmers immediately and also awareness.
- u) Role of MVUs should be increased in awareness, treatment and vaccination drive and the MVU operating in infected area should not enter the free area and if required proper disinfection protocol should be followed.
- v) Door to door awareness and vaccination drive should be undertaken with the help of NGOs, village leaders, youths, cooperatives, school teachers and other stakeholders.
- w) Milk collection centers should educate the farmers at the time of milk collection and ensure healthy milk collection without mixing of the milk of infected animals. The consumption and transport of raw milk of infected animal should be discouraged. The milk from affected animals may be used after boiling.
- x) Group grazing area and animal groups should be monitored and vaccinated and the infected animals should be immediately separated and kept under

isolation under veterinary care. Special care should be taken to monitor the movement of animals from affected districts and states and round the clock check post with disinfection system should be activated and documented.

- y) Veterinarians and para-veterinarians working in the infected zone should not be deputed for other works so that their services are available round the clock and they can contribute effectively in disease control programme. Proper TA/DA and incentives should be given and announced for veterinarians, para-veterinarians and other staff to motivate them in disease control operations.
- z) Proper communication with media/social media for update on actual situation to avoid rumours and unnecessary panic in the public

Advisory - Lumpy Skin Disease (LSD)

Lumpy skin disease (LSD) is an infectious viral disease of cattle and buffaloes caused by the *Capripox* virus of family *Poxviridae*. It is transmitted by arthropod vectors such as mosquitoes, biting flies and ticks. The disease is characterised by mild fever for 2-3 days followed by development of stiff, round cutaneous nodules (2-5 cm in diameter) on the skin all over the body. These nodules are circumscribed, firm, round, raised and involves the skin, sub-cutaneous tissue and sometimes muscles. Symptoms may include lesions in mouth, pharynx and respiratory tract, emaciation, enlarged lymph nodes, oedema of limbs, reduction in milk production, abortion, infertility and sometimes, death.



Although infected animals often recover within a period of 2-3 weeks, there is reduction in milk yield in lactating cattle for several weeks. The morbidity rate is around 10-20% and mortality rate is around 1-5%.

Clinical Surveillance

Clinical surveillance of susceptible cattle population for nodular skin lesions should be carried out along with recording of morbidity and mortality data in LSD-suspected areas. Monthly clinical surveillance data should be communicated to DAHD in the format annexed.



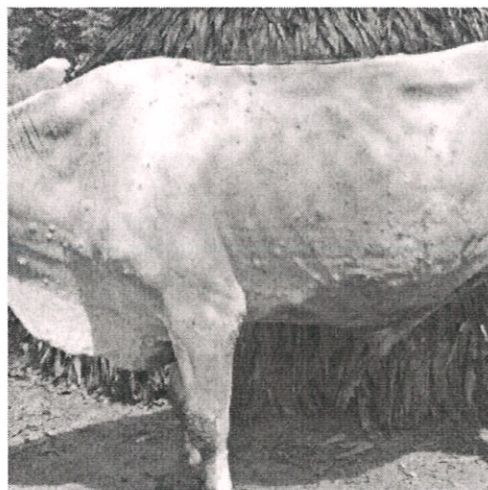
Referral of Samples from clinically affected animals

Representative samples (EDTA blood and skin biopsies/scabs) from animals in LSD suspected outbreaks should be referred to ICAR-NIHSAD, Bhopal for laboratory testing.

Prevention and Control:

- a) Immediate isolation of sick/ infected animals from the healthy animals

- b) Any animal suspected of febrile nodular skin disease should not be introduced into the unaffected holding or farm
- c) In affected villages and animal holdings, the affected animal should be kept separate from unaffected animals by avoiding common grazing and thereby direct contact
- d) Efforts should be made to reduce the vector population in affected areas. Unaffected animal should be applied with insect (ticks, flies, mosquitoes, fleas, midges) repellent to minimize mechanical transmission of LSD
- e) Ensure strict control of animal movement from affected areas to free areas and to local animal markets
- f) Trade of live cattle, participation in fairs, shows should be banned immediately upon confirmation of the disease in the affected areas
- g) All biosecurity measures and strict sanitary measures for disposal of personal protective equipment (PPE) etc. used during sampling from affected animals should be followed
- h) Cattle markets located within 10 km radius of the epicentre of infection should be closed
- i) Thorough cleaning and disinfection of affected personnel, premises and contaminated environment including vehicles plying through the affected animal holdings should be carried out with appropriate chemicals/disinfectants [Ether (20%), chloroform, formalin (1%), phenol (2%/15 minutes), sodium hypochlorite (2–3%), iodine compounds (1:33 dilution), quaternary ammonium compounds (0.5%)].



Bovine Semen:

1. Semen should not be collected and processed for frozen bovine semen production and distribution from the animals showing clinical sign of LSD
2. The blood and semen from affected and clinically recovered animals shall be subjected to agent detection by PCR with negative results before use for AI/natural service

Awareness campaign

Awareness campaign regarding the clinical signs and production losses due to LSD shall be conducted. Reporting to the veterinary authority should be done immediately when suspected cases are noticed.

Treatment

- a. Sick animals are to be kept in isolation
- b. Symptomatic treatment of affected animals may be carried out in consultation with veterinarian
- c. Administration of antibiotics for 5-7 days to check secondary infection may be considered on case to case basis to check secondary bacterial infection.
- d. Administration of anti-inflammatory and anti-histamine preparation may also be considered.
- e. In case of pyrexia, paracetamol can be given
- f. Application of antiseptic ointment with fly-repellent property over the eroded skin is recommended
- g. Parenteral / oral multivitamins is advised.
- h. Feeding of liquid food, soft feed and fodder and succulent pasture is recommended for the infected animals.



Disposal of carcass of LSD-affected animals

In cases of mortality, animal carcass should be disposed of by deep burial.

Annexure

Format for Reporting on Monthly clinical surveillance data on LSD

Month:

Name of the State:

Sl. No	No. of Samples screened at State level	No. of Samples submitted to NIHSAD, Bhopal	No. of animals found positive	Name of the District

Format of Sample Submission form for Lumpy Skin Disease

Sender's details:

Date of sample collection:..... Date of dispatch of samples:.....

Place of Collection (Village/Block/District):

SpecimenDetail:

Address of farm/Owner	Organized Farm/ Backyard	Herd Strength/ (No. affected)	Animal/ Sample ID	Age	Sex	Species /Breed	Clinical History of Disease, duration of disease	*Specimen Collected 1. Skin nodules/Scab 2. EDTA blood 3. Serum 4. Swabs (Ocular, Nasal or Oral) 5. Semen

* Cold Chain must be maintained at each stage with frozen gel packs or dry ice as per requirement.

Guidelines for Sample Collection and Dispatch for Diagnosis of Lumpy Skin Disease (LSD)

The following specimens should be collected from LSD suspected cattle or buffalo and sent to the laboratory for LSD testing.

- **Whole Blood:** Collect sufficient volume of blood (a minimum of 5 ml) from the jugular or tail vein (coccygeal vein) in sterile vaccutainers (10 ml) with EDTA (purple stoppers) and store at refrigerated temperature (4°C) until shipping in ice within 2-3 days.



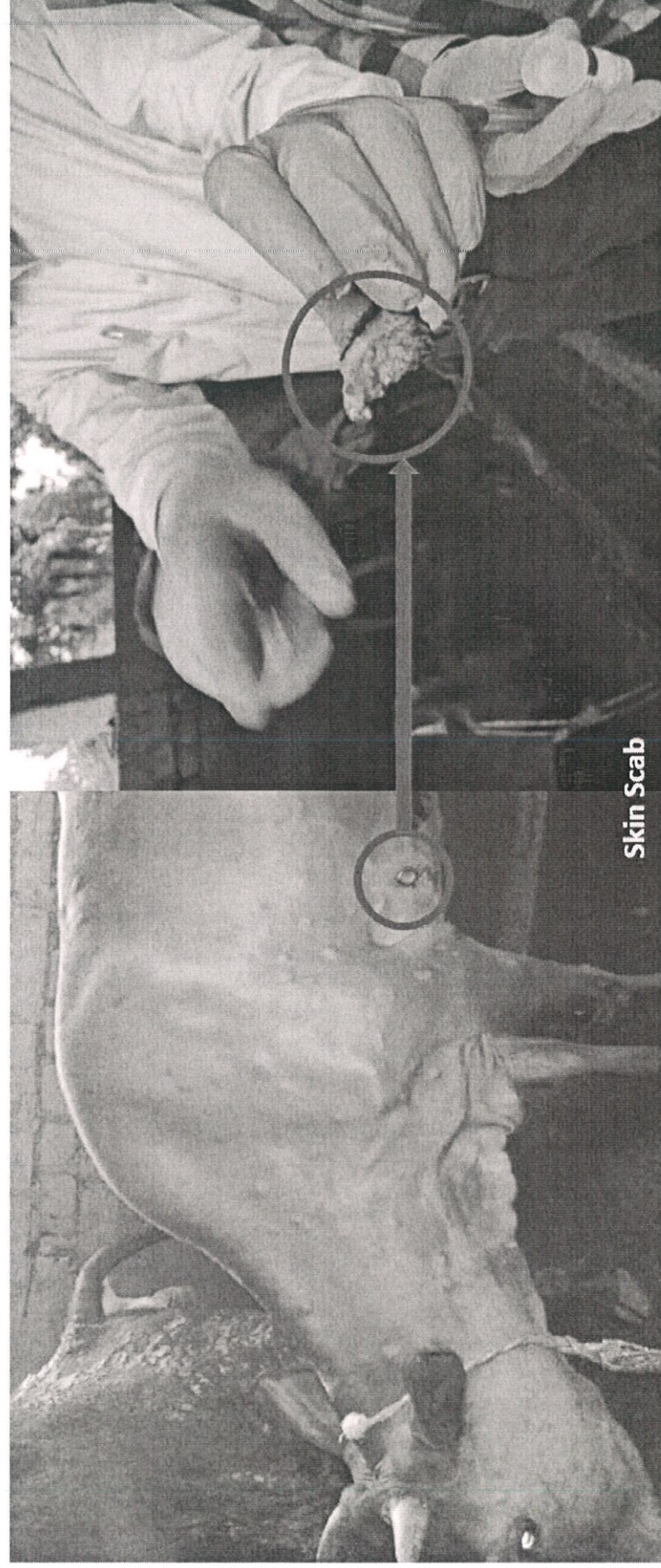
Blood Vaccutainer



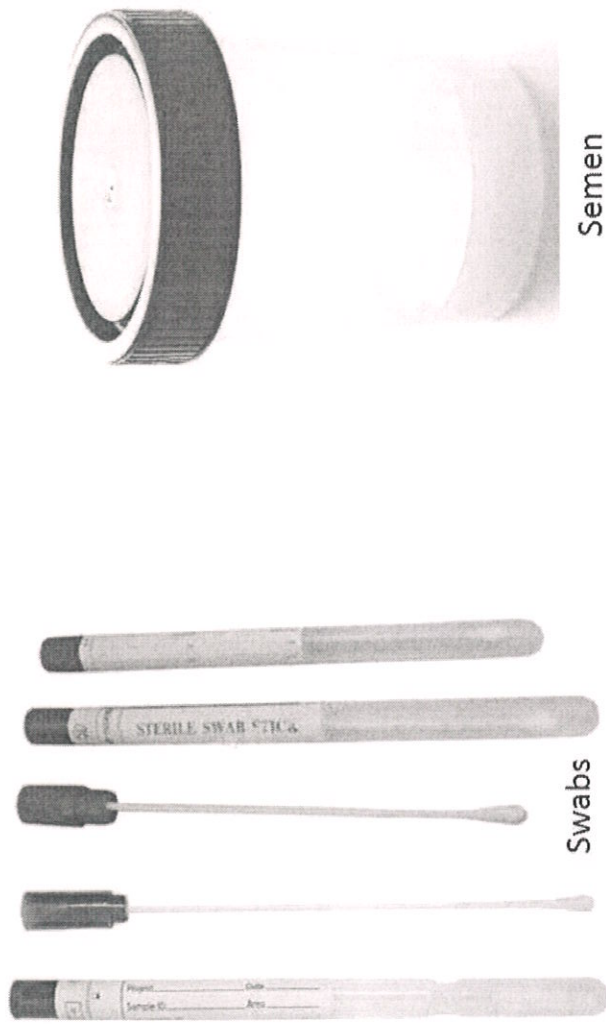
Serum Vaccutainer

- **Serum:** Collect sufficient volume of blood (3/4 vol. of tube) from the jugular vein in sterile vaccutainers (10 ml) without anticoagulant (red stoppers). After collection, tubes should be allowed to stand at ambient temperature for at least 1-2 hours in an upright position to let the clot begin to contract. Store the serum vaccutainers at refrigerated temperature (4°C) until shipping in ice within 2-3 days. If shipping period is >48 hrs., ship in dry ice.

- **Skin nodular lesions or scabs:** *Restrain the animal and use suitable local anaesthetic to avoid injury to both animal and sample collector.* Collect skin biopsies from skin nodules or scabs (2-4 numbers) preferably from upper body parts of each animal and place them in sterile leak-proof containers having 4-5 ml of viral transport medium or sterile phosphate buffer saline with antibiotics (Streptopenicillin). Store the samples at refrigerated temperature (4°C) until shipping in ice. If shipping period is >48 hrs., ship in dry ice.



- **Swabs (Ocular, Nasal or Oral):** Collect samples using sterile swabs and place into leak-proof sterile tubes having 1ml of viral transport medium or sterile phosphate buffer saline with antibiotics (Streptopenicillin) and store at refrigerated temperature (4°C) until shipping in ice. If shipping period is >48 hrs., ship in dry ice.



- **Semen:** In case of affected bulls used for breeding, besides blood, skin lesions/scabs and other samples, collect 2-3 ml of raw semen in sterile leak-proof containers and store at -80°C or liquid nitrogen until shipping in dry ice or LN₂. In case of frozen bovine semen, send at least 2-3 straws of semen in dry ice or LN₂.

General Guidelines:

1. Avoid undue stress or injury to animals during sampling.
2. Collect appropriate samples based on the clinical signs. Skin lesions and scabs, nasal, oral and ocular swabs, EDTA blood and serum are preferred samples for laboratory testing.
3. All materials used for sampling skin tissue should either be autoclaved or be disposed off safely.
4. Sample aseptically, avoid cross-contamination between samples, disinfect the sample collection site, change needles, scalpels and gloves.

TRANSPORT OF SAMPLES

- Samples should be labelled properly before their dispatch to ICAR-NIHSAD, Bhopal as soon as possible to prevent them from deteriorating and to ensure a reliable result, as well as to prevent the samples and the environment from being contaminated during transport. **Ensure that the samples reach NIHSAD within 2-4 days of collection or send the samples through special messenger.**
- Shipped samples must be provided with adequate amounts of cooling materials, e.g. ice packs/dry ice, to prevent deterioration. It is important always to maintain a "triple layer" packing structure when transporting diagnostic samples.
- The primary (leak-proof, water resistant and sterile) container holds the sample. The lid of each sample container must be sealed with adhesive tape or parafilm and wrapped with absorbent material. Several sealed, wrapped primary containers may be placed in one secondary container. The secondary leak-proof container should contain a sufficient amount of absorbent material. Required labels must be affixed to the rigid outer (third) layer, with sufficient cushioning or dry ice inside.

Information for Immediate Notification of Lumpy Skin Disease
(Separate sheet for each epicenter)

Name of Epicenter -	Details to be given
1) Date of start of the event / outbreak / symptoms noticed	
2) Date of sample submission	
3) Date of confirmation of the event by NIHSAD or RDDDL	
4) Name of the state, district, block, village i.e. details of the epicentre of the outbreak	
5) Type of establishment	
6) Latitude and longitude of the epicentre	
7) Animal species affected and number of each species affected	Cattle Buffalo Others specify
8) Number of susceptible animals	Cattle Buffalo Others specify
9) Number of cases	Cattle Buffalo Others specify
10) Number of animals died (mortality cases)	Cattle Buffalo Others specify
11) Number of animals killed and disposed of	
12) Number of animals slaughtered (meat used for human consumption)	
13) Epidemiological findings	
14) Control measures applied	
15) Whether treatment given to animals, if so specify	
16) If Vaccination done name of the vaccine and animals vaccinated	
17) Date of end of the event or outbreak if all animals have recovered	

K-11053/69/2019-LH

DEPARTMENT OF ANIMAL HUSBANDRY & DAIRYING

EXIT Plan January 2023: Lumpy Skin Disease (LSD) Control Measure

1. The state shall have the LSD active cases zero for the last 30 days.
2. The state shall have completed the carpet LSD vaccination as per the advisory of DAHD for all susceptible and eligible cattle population.
3. The state has conducted the random LSD surveillance (for detection of affected animals) in the state after 30 days of the last laboratory confirmed (PCR positive) case detected in the entire state by random sampling on 0 day (30 th day of the last case detected in the entire state) and 15th day from the most LSD affected area of the district by sampling at least 10 animals (two each from five different villages/epidemiological units) from each affected district. Animals with skin nodules if any, or animals with drop in milk production, fever, nasal, ocular or oral discharges shall be targeted for random sampling. The random samples (nasal/ocular/oral swabs and whole blood or skin tissue) of the animals tested by the DAHD designated LSD testing laboratory of the concerned State/UT shall be negative for LSD virus (LSDV) by PCR. The records shall be maintained in this regard by the respective States/UT. *If any sample from the random surveillance is found positive for LSDV by PCR at the authorized designated laboratory, only then the suspect positive sample shall be referred to ICAR-NIHSAD, Bhopal for confirmation, as per the LSD sampling format and guidelines of ICAR-NIHSAD.* In case the disease is confirmed in the animal (s), then the DAHD control and treatment advisory shall be implemented immediately.
4. The state should have the provisions of health checks for the animals coming from the other states. The cattle from the affected states shall not be allowed to enter the state. However, buffaloes can be allowed as per DAHD guidelines as under:
 - The interstate movement of buffaloes may be allowed from non-infected areas (as defined in DAHD guidelines) with the routine health certificate.
 - Secondly, for the movement of buffaloes across the States in view of the present situation, it is crucial that animal movements from affected areas (Within 01 km from the epi-centre) have to be monitored so as to prevent the spread of infection.
From the infected areas, the buffaloes should be inspected for clinical signs by a Veterinarian Officer (no animal with clinical signs should be allowed for movement, even if mild symptoms are noticed),

accompanied by a recent health certificate issued by the Veterinary Officer along with negative PCR report of the designated laboratory, before transportation.

- Vehicles and other equipment including the loading and unloading ramps should be cleaned and disinfected thoroughly at the premises, where cattle are unloaded.
5. The animals allowed for movements outside the state and for cattle fares/any other purpose inside the state shall accompany the official health certificate from the designated veterinary officer certifying that the animal is free from clinical sign and symptoms of any infectious and contagious disease including LSD. The animals shall be properly vaccinated with tag numbers. The record shall be maintained in this regard for traceability.
 6. The state shall monitor the potential vector activity, presence of vector breeding sites such as lakes, rivers, grazing sites and accordingly necessary action shall be taken to check the vector populations.
 7. The risk areas like high vector population areas, grazing areas, cattle fares/markets, gaushalas etc. and animal population shall be regularly monitored for any unusual sickness and mortality and if noticed, immediately measures shall be taken as per the DAHD advisory in respect to LSD.
 8. The carcass disposal sites shall be identified and monitored regularly with documentations
 9. The veterinary hospitals and dispensaries shall have proper veterinary care requirements like disinfectants, medicines, mineral mixtures, instruments etc at all times.
 10. State shall access regularly the district level preparedness as per the control and treatment guidelines for tackling any eventuality, availability of veterinary care logistics etc. to handle any emergency situation in future.
 11. The state shall maintain the general sanitation and biosecurity measures at all times so that the any disease incidence including LSD shall be prevented.
 12. The state shall conduct regular awareness programmes for animal owners, local youths, NGOs, schools and village bodies to handle and manage such infections in future

INDICATIVE MANAGEMENT AND TREATMENT OF LUMPY SKIN DISEASES (LSD) IN ANIMALS

A. The treatment guidelines for Lumpy Skin Disease (LSD) are as under:

1. LSD affected animals should be separated from healthy animals and shall be kept in strict isolation and monitoring under veterinary supervision.
2. Symptomatic treatment including the treatment of secondary infection (if any) shall be carried out during isolation of animal.
3. Based on the symptoms and clinical signs following is recommended:
 - a. Use of anti-inflammatory drugs (preferably non-steroids) to treat the inflammatory condition
 - b. Use of anti-histamine preparations/drugs to treat allergic conditions
 - c. Use of Paracetamol in case high fever is observed
 - d. In case of secondary bacterial infections like respiratory infections, skin infections antibiotics may also be used judiciously. The dose and duration of the antibiotics should be strictly adhered including advice to the owner to follow the withdrawal period for milk
 - e. Parental/oral multivitamins may also be given
4. Treatment by methylene blue (MB)
 - Oral treatment with 0.1% Methylene Blue (MB) solution (1 gram of MB powder in 1 liter of water) may be considered by the Veterinarian.
 - Following dosage may be attempted:
 - Adult cows (of approximately 350 Kg body weight): 300 ml at 8 hourly interval (thrice in a day) for 4 days.
 - Calf: give approx. half dose
 - MB solution/preparations may also be used topically every (eg. by spray).
 - A milk withholding interval of 96 hours and a meat withdrawal interval of 14 days (if used in meat producing animals) is advised
5. Feeding of liquid feed/food, soft feed and fodder and succulent pasture is recommended

Advise: Except in unavoidable circumstances, the treatment of infected animal should be done through oral medication and topical application to avoid spreading of disease through treatment procedures and contamination of treatment accessories and personnel during treatment.

B. USE OF HERBAL SOLUTIONS

The under mentioned Herbal Animal Health Solutions also offers a supportive role in management of Lumpy Skin

1. Wound Healing and Fly Repellents

Available herbal spray, cream and gel promotes rapid wound repair in the skin nodules due to rapid collagenisation, have strong fly repellent action that prevent flies from sitting on the wounds and prevents maggot in wounds.

Preparations:

Like Topicure Advance Spray Natural Remedies Skin Healer and Fly Repellent, Scavon skin spray, charmil skin spray, Himax cream, Skin heal and Tee burb Indian Herbs Oral skin healer may be used.

2. Appetite and Digestive Tonics

Appetite stimulants restore the appetite, rumen functions and also prevent loss of body condition among animals

Preparations:

Like Himalayan Battista 100gm Indian Herbs, Appetonic 50gm HDC and Ruchamax 15gm/300g may be used

3. Immunomodulators and antioxidants

Improve immunity and potent and improve overall health.

Preparations:

Like Restobal 500ml/1Lit Ayurved Immunity enhancer and Geri forte 500ml/1Lit HDC may be used.

4. Instant Energy Booster

Sustain energy level and keeps animal active

Preparation:

Like Gluca-Boost Liquid Natural Remedies Energy Booster may be used

C. Homeopathy Preparations

The under mentioned Homeopathy preparations may also offers a supportive role in management of Lumpy Skin Disease and may be used:

Scrophularia nodosa 30

Antim tart 30

Ars alb 30

Calendula MT

D. Ethnoveterinary formulations (also refer www.nddb.coop)

The under mentioned formulations are also recommended:

1. **Oral preparation** (for one dose): Betel leaves-10 nos. + Black pepper-10 gm + Salt-10 gm
Blend this to form a paste and mix with jaggery
Dose: Day 1- One dose every three hours
Day 2 and onwards for 2 weeks- Three doses daily
2. **Oral preparation** (for two doses): Garlic-2 pearls + Corlander-10 gm + Cumin-10 gm + Dry cinnamon leaves-10 gm + -10 nos. + Black pepper-10 gm + Betel leaves-5 nos + Shallots-2 bulbs + Turmeric- 10gm + chirata leaf powder- 30 gm + Sweet basil 1 + Neem leaves - 1 handful + Aegle marmalos 1 handful + Jaggery-100 gm
Blend this to form a paste and mix with jaggery
Dose: Day 1- One dose every three hours
Day 2 and onwards till recovery- Two doses daily
3. **External application** (if there are wound): Acalypha indica leaves-1 handful + Garlic-2 pearls + Neem leaves-1handful + Coconut or Sesame oil-500 ml + Turmeric powder- 20 gm + Mehndi leaves- 1 handful + Tulsi leaves- 1 handful
Blend all ingredients and mix with 500 ml coconut or sesame oil andboil and bring to cool
Application: clean the wound and apply directly

For Maggots: Apply Anona leaf paste or camphorated coconut oil for the first day only if maggots are present

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