



Lumpy Skin Disease-a threat to the region

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Introduction

- Lumpy skin disease (LSD) is a viral disease of cattle caused by lumpy skin disease virus (LSDV). The causative agent is a member of the genus *Capripoxvirus* in the Poxviridae family. This virus is also known as the Neethling Virus.
- LSDV has double-stranded DNA genome, which encodes 30 homologues of poxviral proteins known to be structural or non-structural, and it is antigenically and genetically closely related to sheep pox virus (SPPV) and goat pox virus (GTPV) with nucleotide sequence identities of 96% between species.

Background

Lumpy Skin Disease was first identified in southern regions of Africa and Madagascar in the year 1929, it was restricted to the African continent. Over the next 85 years, it spread throughout the majority of **Africa** and into the **Middle East**. In Greece in Europe, the virus entered in **2015** and also in Caucasus and Russia. Further, the virus spread in **2016** into the east in **Balkans**, north towards **Moscow**, and west into **Kazakhstan**. LSD was first reported in India in August **2019** from Mayurbhanj, Odisha.

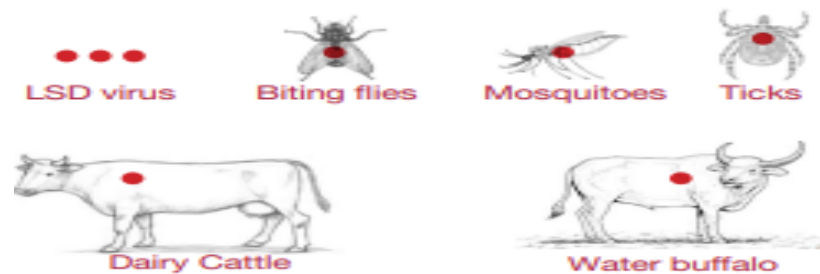
States that have reported cases of Lumpy Skin Disease infection

The disease was first identified in Gujarat and Rajasthan, where thousands of animals died. Now the disease has spread across states like Gujarat, Rajasthan, Punjab, Haryana, Jammu and Kashmir, Uttarakhand, and Himachal Pradesh.



Carrier of this Virus?

- Lumpy Skin Disease (LSD) mainly infects cattle and buffalo, especially the water buffalo (*Bubalus bubalis*) through vectors such as blood-feeding insects (such as mosquitoes, flies, and ticks)
- It can also be transmitted through contact with saliva, nasal discharges or semen.



Lumpy Skin Disease - Symptoms

The symptoms of Lumpy Skin Disease are as follows:

- High Fever of 41°C
- Swollen superficial Lymph Nodes
- The appearance of multiple Nodules (2 to 5 cm in diameter) mainly around the head, neck, limbs, mammary gland of female cattle, and genitals (it usually looks like lumps on the skin) and mucous membranes, lesions in the respiratory and gastrointestinal tracts)
- Discharge from eyes and nose.
- Loss of movement or lameness

According to the experts, the animals who get infected by the LSD virus usually start losing weight suddenly and has an important economic impact on the cattle industry due to loss in milk production and condition, infertility, abortion, damaged hides, and sometimes death because of secondary bacterial infections. Mortality rates in naive population of cattle may reach 5% whereas morbidity rates vary from 3% to 85%.





Lumpy Skin Disease - Incubation Period

- The incubation period for Lumpy Skin Disease is around four to fourteen days after the infection. The initial symptom is a high fever which is followed by swelling in limbs.
- There is the presence of enlarged superficial lymph nodes during this period.
- The nodules appear next and are the most defining characteristic of this disease. These nodules may become necrotic and ulcerate, increasing the risk of flystrike.

Note: Flystrike is a condition in which the flies lay eggs on the animal skin, and the hatching maggots eat into the skin as they grow up. It is a potentially fatal infection for the animal.

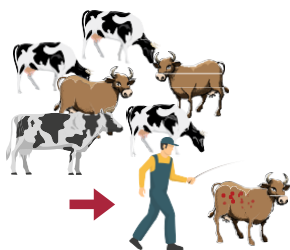
Lumpy Skin Disease - Prevention

The prevention of lumpy skin disease can be done by following these steps.

- **Movement control (Quarantine of suspected cattle):** Sick animals should be kept separate from healthy animals. If the infection is reported in any animal keep it in another place;
- **Vaccination of cattle**
- **Slaughter campaigns (Culling of infected cattle)**
- **Management strategies**
 - Animals showing symptoms of the disease should not be taken to fairs, markets, and exhibitions.



- Measures should be taken to control the number of pests in the livestock, mainly mosquitoes, flies, fleas and chinch should be properly managed.
- Materials used in the examination and treatment of sick animals should not be thrown in the open. If you see an animal with any unusual symptoms in or near your animal shelter, it should be reported to the nearest veterinary hospital immediately.
- The worker of one cattle shed should not go to other cattle shed, along with this, the animal owners should also pay attention to the cleanliness of their bodies.



Separate the suspected case(s) from the rest of the herd.



Separate the rest of the animals from neighboring herd(s) by avoiding communal grazing



Stop cattle movement from/to the farm



Limit visitors to essential services

Lumpy Skin Disease Vaccine

No doubt the most effective way to control is the vaccination and a live homologous vaccine consisting of a Neethling-like strain of LSDV is recommended.

- In a significant development, two institutions of the agricultural research organization ICAR have developed an indigenous vaccination for Lumpy Skin Disease.
- A homologous live-attenuated LSD vaccine called Lumpi-ProVac Ind was made by the ICAR-National Research Centre on Equines ([ICAR-NRCE](http://www.icar-nrce.org)), Hisar (Haryana), in



collaboration with the ICAR-Indian Veterinary Research Institute (IVRI), Izatnagar, Uttar Pradesh.

Lumpy Skin Disease - Treatment

- There is no specific treatment for the virus, and the best way to prevent infection is to vaccinate the cattle.
- Also, secondary infections in the skin may be treated with **Non-Steroidal Anti-Inflammatories** (NSAIDs) and also antibiotics when appropriate.

Lumpy Skin Disease - Recovery

- It can take several months for the cattle to recover from the Lumpy Skin Disease; in most cases, the recovery period is prolonged by the secondary infections that occur.
- In some cases, the complete recovery of an infected animal may take up to 6 months.

