

## Lumpy Skin Disease (LSD - A Deadly Viral Disease of Cattle

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### Abstract

Lumpy skin disease in cattle leads to enormous monetary losses in the cattle business. Lumpy skin disease virus (LSDV) is caused by the virus of member of the Poxviridae family of the genus *Capripoxvirus*. This includes the sheep and goat pox viruses. LSD is an enzootic viral drug eruptive, and seldom deadly bovine illness characterized by nodules on the skin. Water buffalo and cattle are the only animal species afflicted, with substantial morbidity but moderate fatality; however, death rates are greater among calves. LSD reduces milk and meat production, induces miscarriages in females, and causes male sterility. As cattles are the main source of economy for India this outbreak led to decrement of the milk production and overall GDP of India. In this article, we have mainly focused on the transmission, clinical symptoms and prevention and control schemes run by the government to mitigate with this outbreak.

### Introduction

Lumpy skin disease (LSD) is a new trans-boundary viral illness as a result of the lumpy skin disease virus (LSDV), a member of the *poxviridae* family's *Capripoxvirus* genus. The principal hosts of this illness are cattle and water buffalo, although other wild species including as giraffes, springboks, and oryxes can also be afflicted. The LSDV is mechanically transmitted via arthropod vectors like ticks, biting flies, and mosquitoes. Fever, lacrimation, skin nodules, nasal discharge, skin oedema, and swollen lymph nodes are clinical symptoms in infected animals.

It can also cause decreased milk production and even death. LSD has a morbidity rate of up to 90% and a fatality rate of 10% or less. The World Organization for Animal Health (OIE) has classified LSD as a toxin.



### Transmission

The virus mostly spread mechanically by insect vectors (mosquitoes, flies, ticks, etc.) or infected needles. Some of them might potentially be carried by the wind or within vehicles from an affected location. The specific vectors that will differ between countries and have received little attention. Once established in a new region, spread is most likely to occur during seasons when flies are a nuisance, such as the summer and autumn months when conditions are damp and warm. Contaminated feed, water and equipments can potentially transmit the illness. Humans are not infected with the virus.

### Diagnosis and Clinical Detection of LSD

Symptoms range from subtle to severe. There is currently no indication of virulence variation between LSDV strains.

- ✦ A fever that may reach 41°C.
- ✦ Significant decrease in milk output in lactating cattle.
- ✦ Depression, anorexia, and malnutrition.
- ✦ Rhinitis, conjunctivitis, and excessive salivation are all symptoms.
- ✦ Swollen superficial lymph nodes.

- ✿ Within 48 hours after the commencement of the febrile response, coetaneous nodules of 2-5 cm in diameter appear, most notably on the head, neck, limbs, udder, genitalia, and perineum. These nodules are confined, hard, spherical, and elevated, including the skin, subcutaneous tissue, and occasionally the underlying muscles.
- ✿ Large nodules may become necrotic and finally fibrotic, lasting many months ("sit-fasts"); scars may be permanent. Small nodules may dissolve on their own without causing any problems.
- ✿ Nodule meiosis may develop.
- ✿ Vesicles, erosions, and ulcers can form on the mucous membranes of the mouth and digestive tract, as well as the trachea and lungs.
- ✿ Limbs and other ventral structures regions bodily parts, such as the dewlap and brisket, scrotum, and vulva, may develop edematous, making the animal difficult to move.
- ✿ Bulls may develop into sterile, either permanently or temporarily.
- ✿ Recovering from a serious illness is slow owing to emaciation, subsequent these include pneumonia, mastitis, and necrotic skin plugs susceptible to fly attack and shed leaving big holes in the hide.

#### **Prevention of Lumpy Skin Disease**

- ✿ The most effective kind of defense is preventive vaccination of the entire herd of cattle, done well in advance in risky locations.
- ✿ Cattle movements within the nation and across borders ought to be severely regulated or outright prohibited. A veterinarian certificate with all information on the animals' origins and assurances of their health should be included with authorized cattle transfers.
- ✿ If possible without compromising animal welfare, cow herds in effected villages should be maintained apart from other herds by refraining from communal. It is necessary to assess the viability of separation on a on a case-by-case basis when the entire hamlet forms a single epidemiological unit.

- ✦ Once it is confirmed that a vaccine with a history of success has given an animal full immunity, movement of the animal within a country's boundaries might be restricted (28 days after vaccination).

### Schemes

To reduce the danger of disease transmission by insects, cattle should get regular insect repellent treatments. Although it cannot completely stop transmission, this step may lower the danger. For the purpose of defending animals resistant to Lumpy Skin disease, the indigenous vaccine Lumpi-ProVacInd has been created. The National Equine Research Institute Center in Hisar, Haryana, and the Veterinary Research Institute of India in Izzatnagar (Bareilly) worked together to develop the vaccine

