



Lumpy Skin Disease: Indian Cattle

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Lumpy skin disease is a vector-borne pox disease of domestic cattle and Asian water buffalo and is characterized by the appearance of skin nodules. Endemic across Africa and the Middle East, the disease has, since 2015, spread into the Balkans, the Caucasus and the southern Russian Federation. Outbreaks of LSD cause substantial economic losses in affected countries, but while all stakeholders in the cattle industry suffer income losses, poor, small-scale, and backyard farmers are hit hardest. The disease impacts heavily on cattle production, milk yields, and animal body condition. It causes damage to hides, abortion, and infertility. Total or partial stamping-out costs add to direct losses. Indirect losses stem from restrictions on cattle movements and trade. In addition to vectors, transmission may occur through consumption of contaminated feed or water, direct contact, natural mating or artificial insemination. Large-scale vaccination is the most effective way of limiting the spread of the disease. Effective vaccines against LSD exist and the sooner they are used the less severe the economic impact of an outbreak is likely to be. The purpose of this manual is to enhance awareness of LSD and to provide guidance on early detection and diagnosis for private and official veterinary professionals (in the field and in slaughterhouses), veterinary paraprofessionals and laboratory diagnosticians.

Causal Organism

Lumpy skin disease is caused by the lumpy skin disease virus (LSDV), a member of the genus Capripoxvirus (CaPV) within the family Poxviridae. Lumpy skin disease virus shares the genus with sheep pox virus (SPPV) and goat pox virus (GTPV), which are closely related, but phylogenetically distinct. There is only one serological type of LSDV, and LSD, SPP and GTP viruses cross-react serologically. The large, double-stranded DNA virus is very stable, and very little genetic variability occurs. Therefore, for LSDV, farm-to-farm spread cannot be followed by sequencing the virus isolates, as is done with other TADs, e.g. foot-and-mouth disease (FMD).

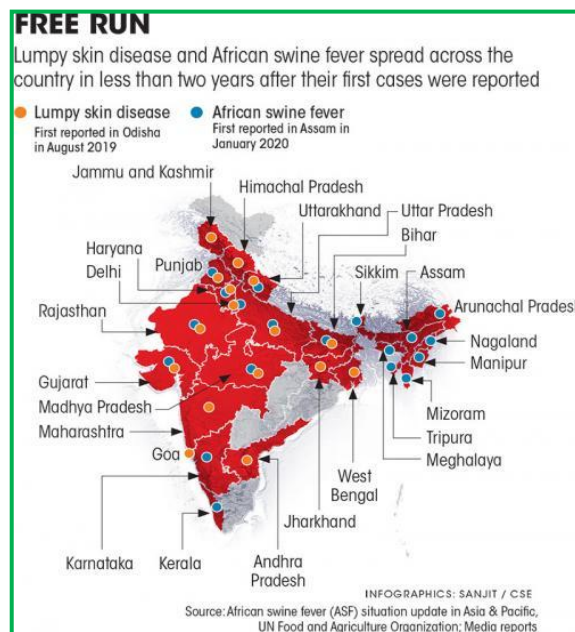
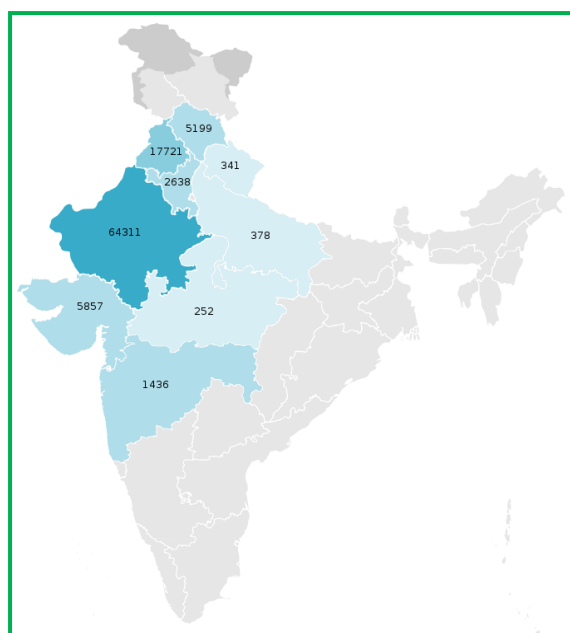
Current outbreak in India

Lumpy skin disease has rapidly spread among cattle in more than 10 states and Union Territories of India. The death rates are rising and it continues to have a disastrous impact on the herd of cattle. Being the world's largest milk producer, the dairy industry of India is facing a huge challenge as a result of the current outbreak. The milk production has been severely reduced and states like Rajasthan, Gujarat and Punjab have already reported a drop in milk yield. Reports indicate a reduction of 5-6 lakh litres a day in the milk yield of Rajasthan. The disease poses a serious danger to the livelihoods of smallholder farmers and farmers in various regions have suffered losses as a result of the deaths of their cattle. The 2022 lumpy skin disease outbreak in India resulted in the death of over 97,000 cattle in three months between July and 23 September. Starting from outbreaks in Gujarat and Rajasthan, in

three months cattle in 15 states across India were affected. On 21 September, out of 18,50,000 cases over 65% of cases were from Rajasthan. Over 50,000 deaths were reported from Rajasthan. India's cattle population according to the last livestock census was 192.5 million

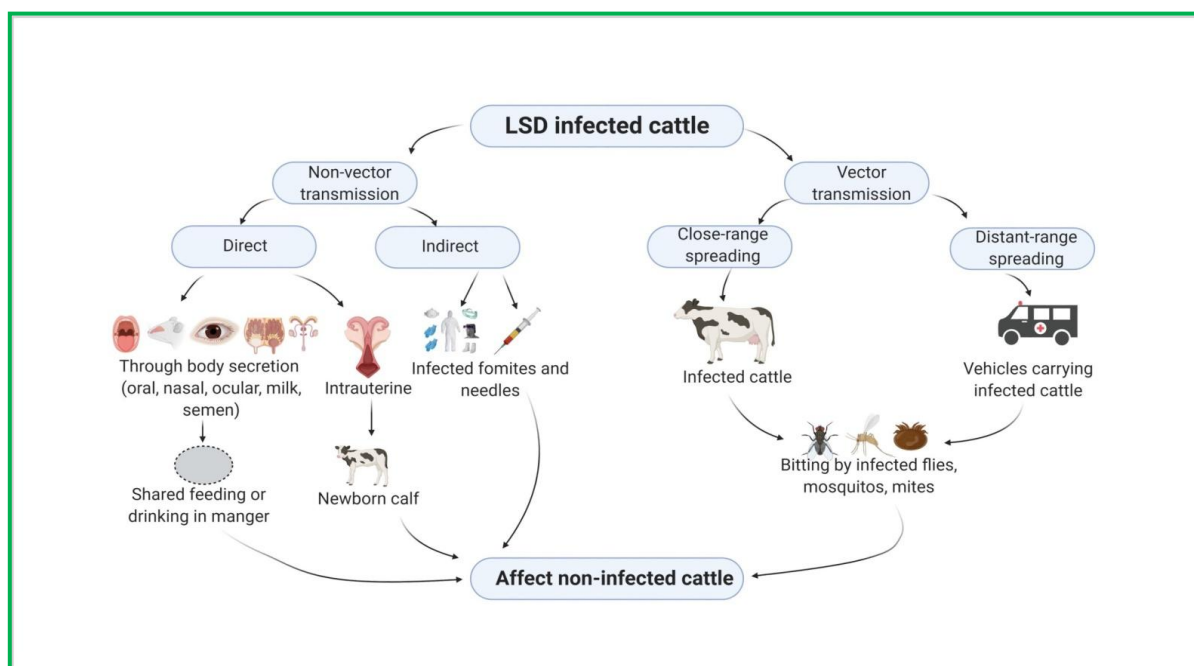
- Affcted - 20,00,000 cattle (as on 23 Sept)
- Cattle vaccinated- 1.66 crore (by 23 Sept) (Source – Wikipedia)

Five states with the most cattle deaths- Rajasthan, Punjab, Gujarat, Himachal Pradesh, and Haryana.



What is Lumpy Skin Disease

Lumpy skin disease is an infectious viral disease caused by Lumpy skin disease virus of Capripoxvirus genus, subfamily Chordopoxvirinae, family Poxviridae. It is a non-zoonotic, vector borne and trans boundary disease with limited host range and currently restricted to ruminants viz. cattle and water buffaloes. Calves are more susceptible and develop lesions within 24 to 48 hrs.



Transmission

Lumpy skin disease is a viral disease that affects cattle. It is transmitted by blood-feeding insects, such as certain species of flies and mosquitoes, or ticks. It causes fever, nodules on the skin and can also lead to death, especially in animals that have not previously been exposed to the virus.

Symptoms of lumpy skin disease

The incubation period for lumpy skin disease is between 4 and 14 days post-infection.

After an initial period of high fever (41°C) and swollen lymph glands, the animal may develop large, firm nodules that are up to 5 cm in diameter in the skin.

- initial symptoms - Lachrymation and nasal discharge
- Subscapular and prefemoral lymph nodes become enlarged and are easily palpable.
- High fever (>40.5°C) may persist for approximately a week.
- Sharp drop in milk yield.
- Appearance of highly characteristic, nodular skin lesions of 10-50 mm in diameter: The number of lesions varies from a few in mild cases to multiple lesions in severely infected animals. Predilection sites are the skin of the head, neck, perineum, genitalia, udder and limbs. Skin nodules may persist for several months.
- Sometimes, painful ulcerative lesions develop in the cornea of one or both eyes, leading to blindness in worst cases.
- Pneumonia caused by the virus itself or secondary bacterial infections, and mastitis are common complications.
- Infected animals often recover within three weeks of treatment with anti-allergy and antibiotic medicines. The morbidity rate in LSD is 10-20%, while the mortality rate is up to 5%.

Source – FAO field manual for veterinarians



Prevention

- A careful surveillance of the disease onset and spread is to be taken up at the farm level.
- Purchase of new animals that are either incubating the disease or are viraemic without exhibiting any symptoms presents a major risk of introducing the disease into a naïve herd. Introduction of new animals into herds should therefore be limited. Stock should be bought only from trusted sources. New animals should be examined and declared free of clinical signs prior to movement and on arrival, and should be kept separated/quarantined from the herd for at least 28 days
- In affected villages, cattle herds should be kept separate from other herds by avoiding communal grazing.

- Cattle should be treated regularly with insect repellents to minimize the risk of vector transmission of the disease. This measure cannot fully prevent transmission but may reduce the risk.
- Limiting vector breeding sites such as standing water sources, slurry and manure, and improving drainage in holdings are sustainable, affordable and environmentally friendly ways of reducing the number of vectors on and around cattle.

Treatment

- ❖ Symptomatic treatment including the treatment of secondary infection (if any).
- ❖ Based on the symptoms and clinical signs: -
 - Use of anti-inflammatory drugs (preferably non-steroids) to treat the inflammatory condition.
 - Use of anti-histamine preparations / drugs to treat allergic conditions.
 - Use of Paracetamol in case of high fever.
 - In case of secondary bacterial infections like respiratory infections, skin infections antibiotics may also be used judiciously.
 - Parental/oral multivitamins.
 - Oral treatment with 0.1% Methylene Blue (MB) solution (1 gram of MB powder in 1 litre of water)

Conclusion

As it has been seen that lumpy disease has caused heavy damage in rural areas of India, due to the death of animals, which caused trouble to the farmers, as well as due to decrease in milk production, farmers had to suffer financial damage, which caused the farmers to suffer financial damage due to the lack of milk production. Due to this article, the economic situation has deteriorated, it can be told to the farmers brothers, what is lumpy disease and how can the disease be saved again.