European Parliament

Lumpy skin disease

From sub-Saharan origins to European outbreaks

SUMMARY

Lumpy skin disease (LSD) is a contagious, non-zoonotic viral infection affecting cattle, water buffalo and wild ruminants. It is caused by the LSD virus (LSDV) of the *Capripoxvirus* genus. First identified in Zambia in 1929, it became endemic in sub-Saharan Africa. It emerged in Europe in 2015, prompting mass vaccination campaigns to eradicate it by 2017.

The recent outbreaks in north Africa in 2023 and in the European Union in 2025 highlight its ongoing threat. LSD is primarily transmitted by blood-feeding arthropods (e.g. mosquitoes and ticks), with symptoms including fever, skin nodules and mucosal lesions. Reduced milk production, weight loss, damage to hides, trade restrictions and costly biosecurity measures cause significant economic losses, threatening small-scale farmers and livestock industries. The virus persists in dehydrated skin lesions and vectors, complicating control.

Vaccination remains critical, with homologous Neethling strain vaccines offering strong protection but sometimes associated with localised skin reactions ('the Neethling response') and vaccine virus shedding in milk and blood. The Standing Group of Experts on LSD (SGE LSD), established in 2016, fosters regional collaboration to combat the disease. Effective cross-border cooperation, timely reporting through systems like the World Animal Health Information System (WAHIS) operated by the World Organisation for Animal Health (WOAH), and implementation of emergency measures are vital to mitigating its impact.

The 2025 outbreaks underscore the urgency of maintaining robust prevention and response strategies.

IN THIS BRIEFING

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Introduction

Lumpy skin disease (LSD) was first documented in 1929 in Zambia (then Northern Rhodesia) and was initially misdiagnosed as poisoning or an allergic reaction. During the 1940s, it spread to Botswana, Zimbabwe and South Africa, infecting eight million cattle and causing massive economic losses. Over subsequent decades, LSD reached Kenya, Sudan, West Africa and Somalia. In 1988, it emerged in Egypt via imported cattle, leading to a rapid 1989 outbreak across 22 governorates. A mass vaccination campaign controlled the spread.

In 2015, the cattle farming sector across several Balkan countries was severely affected by the outbreaks of LSD. Following its first detection in Greece that year, the disease rapidly spread throughout the Balkan region, with over 7 000 outbreaks reported by the end of 2016. A coordinated regional control and eradication strategy successfully contained the outbreak by the end of 2017.

While the mortality rate of LSD is generally low – between 1 % and 3 % – the morbidity rate varies widely globally. The primary economic consequences stem from high morbidity, which often results in enhanced control measures, restricted international trade in livestock and animal products, and high costs of maintaining biosecurity protocols. Infected or in-contact animals are often culled as part of eradication and control efforts, while strict biosecurity measures add to the significant financial burden.

What is lumpy skin disease?

Lumpy skin disease is a contagious and viral disease affecting only cattle, water buffalo and some wild ruminants, caused by a *Capripoxvirus* of the *Poxviridae* family. The disease is non-zoonotic, meaning it cannot be transmitted to humans either by direct contact with infected animals or through the consumption of animal products from infected animals.

The *Lumpy skin disease virus* (LSDV) is primarily transmitted between animals through blood-feeding arthropods, such as biting flies, mosquitoes and ticks, causing the disease to peak during warmer months when vectors are most active. Direct contact between infected and uninfected animals also spreads the disease; however, its role is considered minor. The virus is shed through blood, nasal and tear secretions, saliva, semen and milk, which can transmit the virus to suckling calves. Transmission via fomites (i.e. contaminated feed or water) remains unconfirmed, but the emergence of recombinant field strains suggests such indirect pathways could play a role.

As a vector-borne disease, LSDV can be transported over large distances via insects carrying the virus, highlighting the dual role of insect mobility and human activity in its geographic expansion. Cross-border collaboration is critical for control and prevention of the disease.

After four to 14 days of incubation, infected cattle start to develop fever, lacrimation and nasal discharge, hypersalivation, and characteristic eruptions on the skin and other parts of the body, such as the mucosal surfaces of the gastrointestinal, respiratory and genital tracts, as well as on the muzzle and in the nasal and buccal mucous membranes. The nodules are well-defined, round and slightly elevated, presenting as firm and tender lesions with a firm, creamy grey to yellowish central core of tissue, and may exude serum.

Mortality is usually low, although morbidity is between 5 % and 50 %. The primary economic impact for people who depend on cattle for food and their livelihoods stems from decreased milk production, weight loss or poor body condition and the rejection or diminished market value of hides due to lesions.

The long-term stability of LSDV has been scientifically established: research has demonstrated that the virus can remain viable in dehydrated skin lesions for 25 to 50 days; however, DNA has been detected in skin lesions for more than 90 days. The virus can endure for several months in animal

housing areas and can survive in ticks throughout the entire life cycle of the vector. The virus can be inactivated by heating it to 55°C for two hours or 65°C for 30 minutes. Skin lesions are regarded as the primary sources of infection, as the virus remains viable in these lesions or scabs for extended periods.

There are currently several commercial options available for vaccines, including homologous and heterologous attenuated virus vaccines. The live attenuated homologous vaccines (made from the same virus that causes the disease – LSDV – but weakened so it cannot cause illness while still providing immunity) based on the Neethling strain are particularly effective, offering robust protection. These vaccines played a fundamental role in large-scale, cross-border vaccination campaigns during the 2015-2017 epidemic, successfully eliminating LSD in parts of southeast Europe and the Balkans. In a limited number of cases, vaccination with the Neethling strain of the LSDV has been associated with localised skin reactions at the vaccination site, as well as generalised small-sized skin nodules and a temporary decline in milk production among lactating cows, a phenomenon known as 'the Neethling response'. Research has also demonstrated the presence of vaccine-derived viruses in skin nodules, blood, and milk samples from cattle administered with Neethling vaccines.

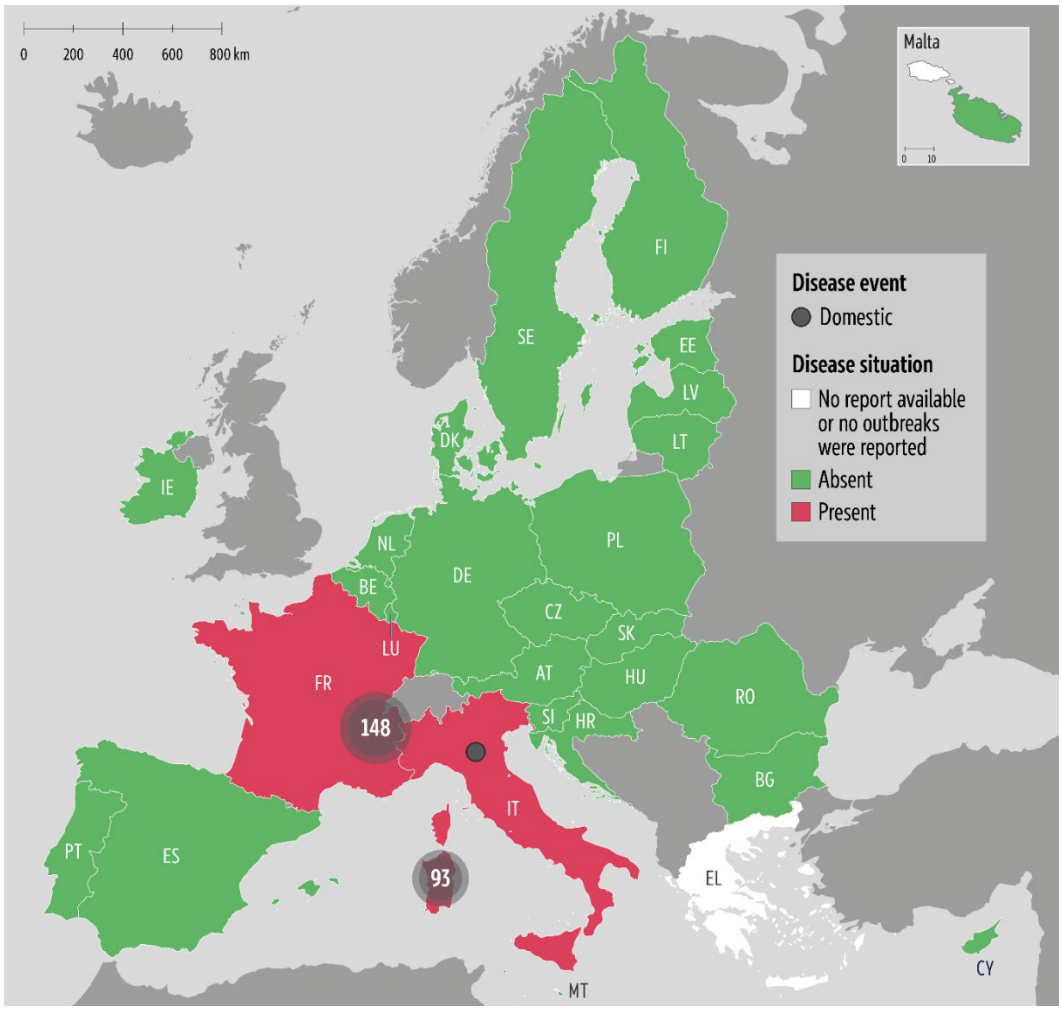
Heterologous live attenuated vaccines (made from related but different viruses similar enough to LSDV to provide cross-protection against the disease) use *Capripoxviruses*, such as *Sheeppox virus* (SPV) and *Goatpox virus* (GPV), to offer cross-reactive protection. Furthermore, they have been developed to safeguard cattle against LSD. While these vaccines are safe for cattle and are administered at higher doses than in their natural hosts (e.g. sheep), they demonstrate reduced efficacy compared to homologous LSD vaccines.

Commission Delegated Regulation (EU) 2023/361, which lays down rules for the use of veterinary medicinal products, including vaccines for the prevention and control of certain listed diseases such as LSD, includes specific conditions for emergency protective vaccination (as outlined in Annex IX).

Reporting an outbreak in the EU

When an outbreak of LSD or another notifiable disease is discovered, the competent authorities of the affected Member State must report it in the EU Animal Diseases Information System (ADIS). Developed in collaboration with the World Organisation for Animal Health (WOAH), ADIS serves the purpose of simplifying data exchange with the World Animal Health Information System (WAHIS) while also enabling the exchange of information between competent national authorities and tracking how the disease is progressing.

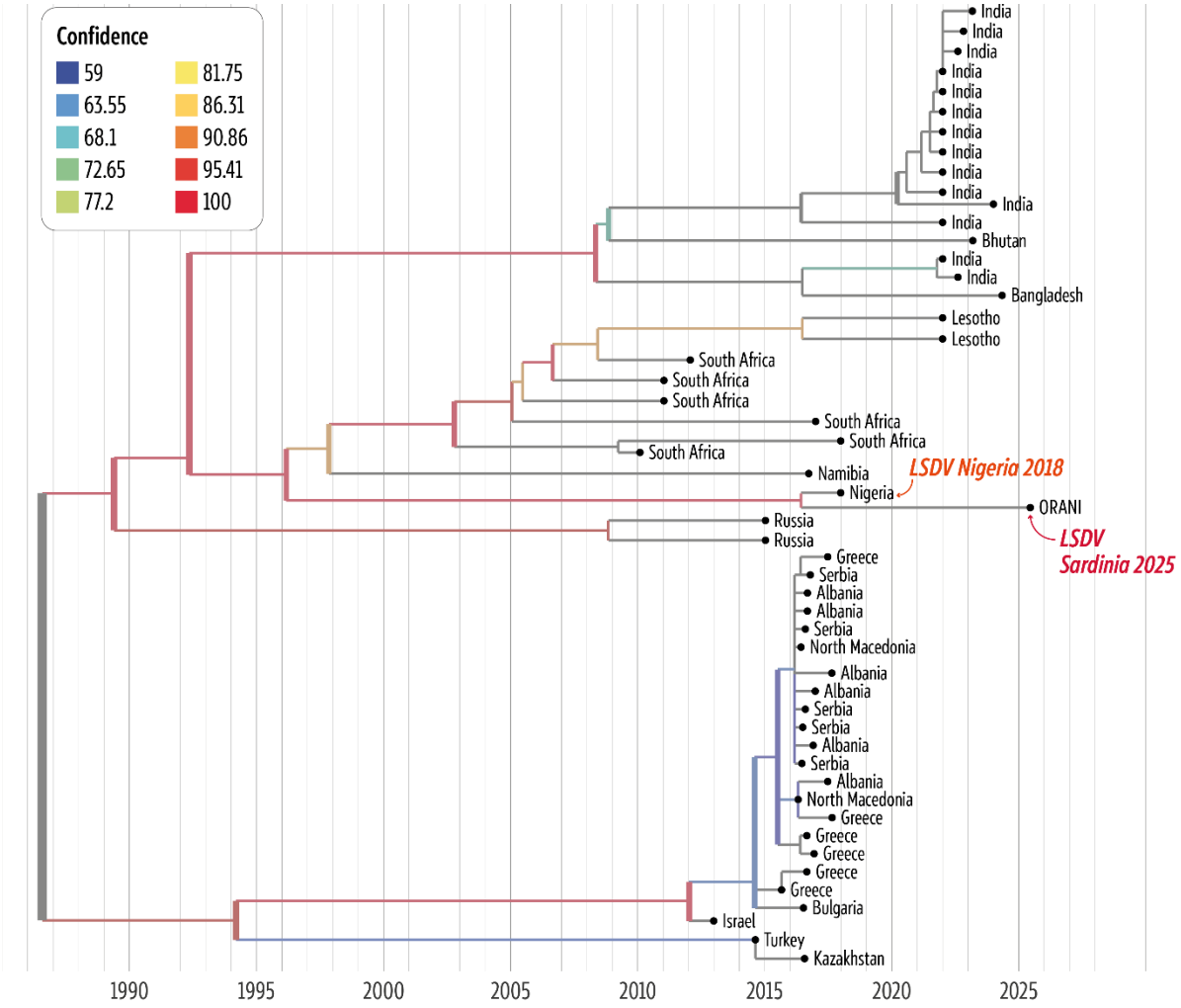
Figure 1 – Reports of lumpy skin disease in Italy and France (last update July 2025)



Data source: WOAH WAHIS dashboard, filters on: countries (France, Italy), year (2025), and disease (lumpy skin disease).

In June 2025, Italy reported a first outbreak of lumpy skin disease in a large cattle farm in Orani, Sardinia, followed by a second case in Porto Mantovano, Lombardy region. All affected animals were slaughtered, and the premises were thoroughly cleaned and disinfected. In addition, Italy implemented emergency protective vaccination in accordance with Regulation (EU) 2023/361 for 300 000 domestic bovines across the entire Sardinia region. Genetic analysis by the European Union Reference Laboratory (EURL) revealed that the LSD virus detected in Italy shares a common lineage with the Nigeria 2018 strain, highlighting a potential epidemiological connection.

Figure 2 – Phylogenetic analysis of the LSDV detected in Sardinia in 2025



Data source: Presentation by the Italian authorities to the EU's Standing Committee on Plants, Animals, Food and Feed (PAFF) – Animal health and welfare, 2 July 2025.

Also in June 2025, France reported the first outbreak of lumpy skin disease in a dairy cattle establishment in the commune of Chambéry, Savoie, in the Auvergne-Rhône-Alpes region, after observing the typical clinical signs in several animals. Following the outbreak, France adopted emergency measures, including emergency protective vaccination of 350 000 domestic bovines in the restricted zone of Auvergne-Rhône-Alpes. On the economic front, special measures were implemented for affected farmers. This includes the rapid disbursement of cash advance compensation shortly after the culling of infected animals. So far, 42 affected livestock owners have received advance payments totalling €2.4 million, pending the final evaluation of their animals' replacement value. Due to its geographical proximity, Italy extended its vaccination strategy to the Valle d'Aosta region. This involved vaccinating approximately 40 000 domestic bovines.

To provide support to the competent authorities in the affected countries, the Commission deployed the EU Veterinary Emergency Team (EUVET), which visited Sardinia in June 2025 and France in July 2025.

EU legislation

Regulation (EU) 2016/429 (the Animal Health Regulation) provides the legal framework, while Commission Delegated Regulation (EU) 2020/687 outlines the detailed rules for the prevention and control of category A diseases, among them LSD. Implementing Regulation (EU) 2018/1882 outlines

specific rules for animal species and groups that have been identified as posing a significant risk to the spread of certain diseases.

According to Article 5 of Delegated Regulation (EU) 2020/687, operators who suspect the presence of a Category A disease in an establishment must isolate all suspected animals, as well as manure, litter and used bedding, and protect them from insects and rodents. They must also:

- implement additional biosecurity measures;
- cease all movements of kept animals to and from the establishment;
- prevent non-essential movements from the establishment;
- update production, health and traceability records;
- follow instructions from the competent authorities.

Article 12 of the same regulation describes the steps to be followed in the event of a confirmed outbreak:

- all animals must be killed as soon as possible on site within the establishment;
- all appropriate and necessary biosecurity measures must be taken;
- bodies or parts of kept animals that have died or have been killed must be disposed of in accordance with Regulation (EC) No 1069/2009 laying down health rules as regards animal by-products;
- any potentially contaminated products, materials or substances in the establishment must be isolated until they are disposed of or processed, and cleaning, disinfection and disposal have been completed under the supervision of official veterinarians.

Some derogations to these rules are provided for in Article 13 of Regulation (EU) 2020/687.

Article 21 envisages the creation of a restricted zone around the outbreak, consisting of a 20 km protection zone and a 50 km surveillance zone, in the case of LSD. Article 22 envisages that, within these zones, the competent authorities are required to:

- compile and keep up to date an inventory of all establishments keeping animals of listed species located in the restricted zone including the species, categories and number of animals (estimated, for poultry) in each establishment;
- based on epidemiological information or other evidence, implement preventive killing, or slaughtering of kept animals in the establishments located in the restricted zone.;
- order and supervise all movements of entire bodies – or parts – to plants approved for processing or disposal for those purposes.

In addition, competent authorities must impose specific conditions for the transportation of animals and products through the restricted zone. They may decide that animal health certificates should not be issued for animal by-products originating from the restricted zone when such products are moved within the Member State concerned. Article 23 provides for derogations.

The regulation also outlines measures to be applied in establishments within the protection zone (Article 25), specific conditions for authorising movements in the protection zone (Articles 29 to 37), and the duration of disease control measures in this zone (Article 39).

Impact on the economy

When LSD appears in a country, the economic impact is immediate. In 2020, the FAO estimated that the economic impact for 23 countries in south, east and southeast Asia is up to US$1.45 billion (approximately €1.3 billion) in direct losses of livestock and production. At the farm and producer level, measures taken to contain the disease often result in the loss of the entire livestock population and its products, leading to a sharp drop in revenue and increased costs associated with putting biosecurity measures in place.

Internationally, trade should continue outside restricted regions in accordance with Article 6 of the World Trade Organization's Sanitary and Phytosanitary Measures (SPS) Agreement, following the standards set by the WOAH. Trade partners should adhere to the principle of regionalisation, which establishes the boundaries of affected regions from which animals and/or their products cannot be moved or commercialised. The WOAH standards aim to protect trade partners from the spread of the disease. However, there may be certain challenges when combating transboundary animal diseases, including:

- lack of systems for monitoring emerging diseases that require region-specific research and technology;
- insufficient real-time tools to track the spread of the disease within and across regions;
- lack of knowledge among farmers about emerging diseases, which delays reporting and response;
- funding gaps;
- a limited supply or absence of vaccines.

What's next?

In June 2025, the European Parliament's Committee on Agriculture and Rural Development (AGRI) started working on an own-initiative report regarding how to secure a sustainable future for the EU livestock sector in light of the need to ensure food security, farmers' resilience and the challenges posed by animal diseases.

The Commission provides financial support for the surveillance and early detection of animal diseases, such as LSD, in high-risk areas through two main initiatives: the Transboundary Animal Diseases (TADs) programmes, which are currently being implemented in Greece and Bulgaria, and the T.H.R.A.C.E programme, which covers Greece, Bulgaria and Türkiye.

MAIN REFERENCES

Infection with lumpy skin disease virus (LSD), DG SANTE webpage.

Lumpy skin disease interactive profile, EFSA.

GF-TADs – Standing Group of Experts on Lumpy Skin Disease in South-East Europe, WOAH webpage.

EU Reference Laboratory for *Capripox* Viruses website.

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