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The role of science in combating lumpy skin disease

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The first case of lumpy skin disease (LSD) detected in France was on June 29, 2025, in a cattle farm in Entrelacs, Savoie. From October 2025, the disease spread to Occitanie. As of January 14, 2026, France had recorded 117 outbreaks in 82 farms spread across 11 departments. The spread of the epidemic caused significant concern within the agricultural community and led to resistance from a minority of farmers against the culling and vaccination measures implemented to control the disease.

As the management of the crisis progressively took on a political dimension – and in a context where a great deal of misinformation was circulating – the Parliamentary Office for the Evaluation of Scientific and Technological Choices sought to clarify the debate by organizing a public hearing centered on the discussion of scientific facts and on-the-ground realities.

The report adopted following this public hearing aims, on the one hand, to provide an overview of current scientific knowledge and, on the other hand, to draw lessons and make recommendations to public authorities.

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A severe disease with global prevalence and major socioeconomic impact, whose eradication relies on four pillars

A severe disease with major socioeconomic impact

➢ An exotic and highly contagious viral disease

Still considered an exotic disease in France until June 29, 2025, lumpy skin disease (LSD) is a viral, non-zoonotic disease for which no treatment exists. The causative agent is a double-stranded DNA virus from the *Poxviridae* family, which is genetically stable and therefore less prone to mutation than other types of viruses[1]. Furthermore, the virus exhibits high resistance in the external environment[2], making its eradication difficult.

LSD is a highly contagious disease with two types of transmission:

- Vector-borne transmission through the bites of insects (horseflies and stable flies, which are biting flies): cattle become infected when bitten by an insect whose mouthparts are contaminated. This is a form of localized transmission because the virus only survives for a few hours in the mouthparts of insects, and their flight range is limited to a few kilometers. Moreover, they are too heavy to be carried by the wind;

- Non-vector transmission, either direct (through intra-uterine transmission) or indirect (through contact between animals via secretions such as saliva or tears, skin lesions, or contact with contaminated equipment such as syringes).

[1] The emergence of a recombinant LSDV strain was observed in Asia.

[2] This virus can survive for weeks or even months in the environment, whether in scabs, on surfaces (fences, drinking troughs, feeders), or in the soil, especially when protected from light and desiccation. It resists moderate temperatures (10-30°C). A humid environment prolongs its survival (slurry, mud, scabs).

The incubation period of the disease can be long, up to four weeks. Infected animals can remain asymptomatic for nearly 28 days before developing clinical signs and becoming highly contagious. A report from the European Food Safety Authority (EFSA) indicates that a cattle showing clinical signs can infect between 16 and 19 other cattle. Asymptomatic but infected animals can also transmit the disease.

With a mortality rate of 10% and a morbidity rate of 50%, LSD is a serious disease that causes animal suffering and is accompanied by a variety of clinical signs such as high fever, anorexia, weight loss, lethargy, decreased milk production, lymph node enlargement, and the appearance of evolving nodules all over the body. The experts present at the public hearing nevertheless noted that more than half of the animals carrying the virus remain asymptomatic.

➢ **A disease widespread globally**

LSD was first identified in Zambia in 1929, then spread to Central and East Africa. In the 2000s–2010s, it moved to the Middle East, then to the Caucasus, Turkey, and subsequently affected Greece (2015), the Balkans (2015–2016), and Bulgaria. This strain then spread to South Asia (India, Bangladesh) between 2019 and 2022. The first outbreaks in Italy, France, and Spain appeared in 2025.

Soon after LSD arrived in the Caucasus, a new recombinant strain emerged following the use of a defective vaccine. This strain spread rapidly across Asia (China, Southeast Asia, and Japan).

LSD is also present in North Africa (Algeria, Tunisia, Morocco), but uncertainties remain regarding the characterization of the circulating strain.

➢ **A disease with major socioeconomic impact**

The economic impacts of LSD are multiple and significant for the cattle industry. This disease causes major losses in milk and meat production and significantly degrades the quality of hides.

Although the meat is edible, European regulations prohibit the consumption of diseased animals. Regulation (EC) No 853/2004, which establishes specific hygiene rules for food of animal origin, stipulates that only healthy animals or those declared fit for consumption after veterinary inspection can be slaughtered for human consumption. Animals showing signs of disease or suspicious lesions must be excluded from the food chain and subject to veterinary advice.

Two other elements justify not sending infected animals to the slaughterhouse: infected animals lose a lot of weight, which severely limits the amount of meat that can be recovered; transporting animals to the slaughterhouse creates movements of animals and flies, posing a very high risk to neighboring farms.

More generally, restrictions on the movement of cattle in regulated areas[1] block commercial exchanges, disrupt livestock sectors, and reduce export opportunities

For farmers, the depopulation of infected herds has a major psychological, emotional, and economic impact.

This health crisis also represents a cost to public finances: the culling of animals is subject to state compensation, and millions of euros are spent on vaccination.

Animals, even those that have recovered[2], exhibit sequelae that strongly affect their economic value: skin scars that make hides unusable, reproductive disorders, and milk production reduced to nothing in the year of the disease.

A disease whose eradication is consensual in the European Union and relies on four pillars

Due to its severity, LSD is classified in European law among Category A diseases, which correspond to the most dangerous diseases for animals and the agricultural economy and which must be eradicated in order to allow the European Union territory to quickly regain its disease-free status, a necessary condition for lifting export restrictions.

European regulations are based on four categories of measures to achieve this objective: surveillance for early detection of the disease, total depopulation of cattle in infected epidemiological units, prohibition of cattle movements, and mandatory vaccination.

➢ **Surveillance for early detection of the disease**

The first pillar of European regulations is surveillance, which is essential for early detection of the disease in order to act quickly. Specifically, cattle owners and vets are required to report any clinical signs characteristic of the disease. Official samples are then taken and analyzed in specially designated and approved laboratories, using standardized diagnostic methods.

➢ **Total depopulation of cattle in the infected epidemiological unit**

The second pillar is, once an outbreak is confirmed, the elimination of proven sources of the virus through the total depopulation, on-site, of all cattle in the infected epidemiological unit, whether it is a building or a pasture. This measure is essential to quickly eliminate sources of the virus and protect neighboring farms, or even those in the geographical area.

[1] Regulated areas are established by prefectural order around each detected LSD outbreak. They include:
- a so-called "surveillance" zone, within a 50-kilometer radius around the outbreak, where prevention measures apply (enhanced veterinary surveillance, disinsection), as well as restrictions on the movement of cattle to prevent the disease from being spread to other farms by cattle transport;
- a so-called "protection" zone, within a 20-kilometer radius around the outbreak, where the same rules apply as in the surveillance zone, with even stricter measures concerning the movement of animals. If 28 days pass after the depopulation of the last infected farm, without detection of other outbreaks, then the "protection" zone becomes a "surveillance" zone.

[2] In EU states, diseased animals are systematically culled; in some countries where the disease is endemic, this is not the case.

However, this is a traumatic measure for farmers. This is why it is accompanied by support measures, including psychological support organized by the Agricultural Social Security system, from the announcement of the outbreak to repopulation. The state also pays compensation to farmers, although this does not compensate for the pain felt.

➢ **Prohibition of cattle movements**

The third pillar consists of the prohibition of cattle movements in a regulated area of 50 kilometers around the outbreaks. This measure is fundamental because it aims to prevent the spread of the virus over long distances through the transport of infected animals. More generally, exchanges of animals with areas where the disease is present must be avoided.

Regarding international cattle movements, there are no agreements like the Schengen agreements on the free movement of animals within the European Union or free trade with the rest of the world: all animals, if alive, must be identified, traced, and come from disease-free areas to move without restriction.

Controls are carried out at borders and within the national territory to combat illegal movements. Thus, 10,000 gendarmerie inspections have been carried out in France since the disease appeared, sometimes using helicopters, which identified eight offenses in fifteen days.

➢ **Mandatory vaccination**

The fourth pillar of European regulations on LSD is mandatory vaccination in the regulated area of 50 kilometers, or even beyond for exposed territories, i.e., geographical areas where there is a risk of contamination. For example, in Corsica, all cattle were vaccinated because this island is twelve kilometers from Sardinia, an area with LSD outbreaks. Cattle in Occitanie were also vaccinated following the discovery of four distinct isolated outbreaks in less than a week. The goal of vaccination is to achieve herd immunity in the concerned areas, which requires a vaccination rate of 80 to 90% of animals.

Crisis management in France considered globally effective by participants despite certain vulnerabilities weakening the system

Crisis management in France considered globally effective

➢ **Pre-existing infrastructures mobilizable in the event of a health crisis**

The public hearing showed that France could quickly mobilize a number of actors to face this health crisis.

▪ *The role of the National Council for the Orientation of the Animal and Plant Health Policy (Cnopsav) and the local health network for the application of regulations*

The implementation of European regulations at the national level was carried out by the National Council for the Orientation of Animal and Plant Health Policy (Cnopsav)[1], which met several times from the beginning of the crisis.

In the territories, the application of European regulations relied on the local network consisting of veterinary technical groups, practicing vets, health defense groups, farmer associations, and state services (departmental directorates for population protection, departmental veterinary laboratories).

As in 2008 during the bluetongue episode[2] or, more recently, during episodes of epizootic hemorrhagic disease (EHD) and avian influenza, this ecosystem has shown its reactivity and efficiency. The proper functioning of this ecosystem is based on mutual trust and respect.

▪ *The role of the Animal Health Epidemiological Surveillance Platform for disease monitoring*

The animal health epidemiological surveillance platform provides technical support to surveillance system managers to improve the efficiency of these systems and adapt them to developments in the situation and on-the-ground reality. To do this, the platform sets up working groups bringing together experts with complementary skills: scientific experts carrying out classic expertise such as analyses produced by ANSES, as well as field actors, technical specialists, and regulatory experts.

As of January 1, 2026, the animal health epidemiological surveillance platform had 31 working groups mobilizing 371 technical experts from 64 organizations.

In the case of LSD, the animal health epidemiological surveillance platform first carried out international monitoring, which resulted in the publication of occasional notes on the situation in the Balkans, then in North Africa. When LSD became established on French territory, monitoring intensified with a daily surveillance rhythm and the publication of weekly information such as maps and interactive dashboards.

The animal health epidemiological surveillance platform was also called upon as early as June 2025 by the Directorate General for Food (DGAL) to define the modalities of post-crisis surveillance. Indeed, European law requires the implementation of surveillance for 14 months from the date on which the decision to stop vaccination was made on the national territory before the disease-free status can be regained. This document was submitted to the Ministry of Agriculture on September 25, 2025.

[1] Cnopsav brings together all actors concerned by animal health policies, in particular agricultural professional organizations, representatives of vets, research institutes, specialized organizations (such as the French Biodiversity Office), and animal protection associations.
[2] The bluetongue outbreak in 2008 had led to mandatory vaccination of all ruminants.

- *The role of the diagnostic laboratory network*

The realization of diagnostics relies on a network composed of four types of actors:

- the Laboratory Office, within the Ministry of Agriculture, which coordinates the entire network for a homogeneous and rapid response. It also manages the approvals and controls of departmental laboratories;

- the National Reference Laboratory (NRL) for ruminant poxvirus, led by the Centre for International Cooperation in Agricultural Research for Development (CIRAD) in cooperation with partners such as the Animal, Health, Territories, Risks, and Ecosystems joint research unit (ASTRE). The NRL validates and optimizes official analysis methods. It centralizes data in a biological material bank, supports departmental analysis laboratories as needed, and conducts research activities on vaccines, methods, and diagnostics in collaboration with private laboratories supplying diagnostic kits;

- the approved departmental analysis laboratories (LDA) responsible for carrying out analyses on samples and transmitting the results to the departmental directorates for population protection;

- the European Reference Laboratory, responsible for harmonizing diagnostic methods between Member States, validating and standardizing LSD virus detection protocols, and coordinating epidemiological surveillance at the European level.

When clinical signs suggestive of LSD are observed in the field and the suspicion is confirmed by the health authorities, biological samples (blood, tissues, secretions) are taken for analysis.

The molecular diagnosis of LSD is based on the detection of capripoxvirus by PCR (Polymerase Chain Reaction). It allows the detection of the presence of the virus and the distinction between whether the viral strain is wild or vaccine-related.

- *The role of the European Union Vaccine Bank*

The European Union Vaccine Bank stores doses of vaccines for a set of Category A diseases such as foot-and-mouth disease, rinderpest, or LSD. In the event of a crisis, Member States can request vaccines free of charge from the Bank, which distributes them according to needs and health priorities. In 2025, 700,000 vaccines were stored for the European Union in South Africa at Onderstepoort Biological Products, the South African vaccine producer.

- *The role of ANSES in granting marketing authorizations for vaccines*

ANSES is responsible for evaluating the safety, efficacy, and quality of vaccines before their commercialization and grants marketing authorization if the vaccine meets safety and efficacy criteria.

After commercialization, ANSES ensures monitoring of adverse effects through a veterinary pharmacovigilance system.

➢ **The reactivity of actors for the implementation of measures to control the epidemic**

- *Diagnosis*

The first French case of LSD was detected in Entrelacs, Savoie, on June 29, 2025, thanks to analyses by the NRL, since there was no approved departmental laboratory for LSD at that date. The NRL carried out this mission from June 27 to July 28. Some 130 suspicions were submitted to it, which allowed the detection of 47 outbreaks in total, in Savoie and Haute-Savoie.

Due to the need to carry out molecular diagnoses in proximity to save time, the Laboratory Office quickly designated five departmental laboratories near the outbreaks, which participated in inter-laboratory tests organized by the NRL. Having demonstrated their ability to provide a reliable molecular diagnosis, they were granted temporary approval by the Laboratory Office on July 28, 2025, for the laboratories of Ain and Savoie, on October 30 for the laboratory of Pyrénées-Orientales, and at the end of December for the laboratories of Pyrénées-Atlantiques and Haute-Garonne.

The NRL characterized the LSD strain circulating in France by complete genome sequencing, demonstrating that it was a wild, non-recombinant strain. It also characterized the genetic group to which this strain belonged and found that it was the same strain in France and Italy. Furthermore, sequencing at different times in Savoie, Rhône, and Pyrénées-Orientales led to the conclusion that only one strain was circulating in France.

- *Vaccination*

The rapid and massive vaccination of animals was possible thanks to the strong commitment of all stakeholders.

ANSES evaluated the vaccines in record time. In an emergency, on July 1, France ordered 350,000 doses from the European Union vaccine bank from Onderstepoort Biological Products. On July 4, ANSES received the elements on this vaccine, and on July 8, it completed the evaluation and authorized the import. The first doses of vaccine from South Africa were delivered on July 15, and vaccination began on July 18.

For the vaccine produced in Europe by the Dutch company MSD and currently in use, ANSES processed a request for temporary authorization for use (TAU)[1] of the vaccine filed by MSD from July 15 and issued the TAU on July 28.

These very short deadlines allowed vaccination to begin in July in Savoie and Haute-Savoie. It is thanks to the combination of massive and rapid vaccination and the elimination of animals in contaminated herds that these two departments were able to quickly free themselves from LSD.

[1] This derogatory procedure provides that a marketing authorization application must be filed concurrently with the temporary authorization for use (TAU) application, the instruction of which will take more time.

All participants highlighted the unprecedented mobilization of vets, both active and retired, firefighters, the army, and veterinary students to ensure the vaccination of all cattle in the regulated areas, as well as the solidarity and support of agricultural organizations and farmers.

Thus, in the Southwest, the vaccination campaign covered 700,000 cattle. In less than six weeks, 92.1% of the herd was vaccinated, despite tensions in the field and sometimes serious threats received by some vets.

In total, 1.7 million animals have been vaccinated since the virus arrived on French territory, sometimes even in areas regarded as free of disease, particularly in certain departments of Occitanie and Nouvelle-Aquitaine and in Corsica.

The local health network is essential for applying LSD containment measures and also for explaining the situation and the relevance of regulations to farmers, otherwise, delays prejudicial to the fight against the disease can accumulate, as illustrated by the following two examples:

- in a Jura outbreak, eight days after the first screening, 60% of the animals had lesions at the time of slaughter;

- in Pyrénées-Orientales, after a slightly longer delay, 80% of the animals had nodules at the time of slaughter.

Finally, vaccination was accompanied by very few side effects. According to a report carried out in mid-December 2025, while one million doses of vaccines had been used, only 46 cases had been reported in pharmacovigilance, mainly inflammatory reactions at the injection site. These can, in beef cows, lead to the partial seizure of non-edible meat at the time of slaughter, a maximum of a few kilograms. Side effects therefore remain very limited.

Vulnerabilities that weaken the system

➢ Vulnerabilities affecting the measures implemented to combat LSD

▪ *Early detection that primarily relies on the farmer*

The speed of detection directly conditions the chances of controlling and eradicating the disease. Two deadlines play a particularly important role: the time it takes for the farmer to detect the first clinical signs; the time between detection by the farmer and notification of the vet.

However, several examples of late detections have been noted: discovery of certain outbreaks with old lesions in Doubs during a depopulation operation, discovery of an outbreak at the slaughterhouse in the Rhône department, discovery of certain outbreaks during vaccination operations in Pyrénées-Orientales.

The insufficient number of vets in certain rural areas may have delayed the detection of some outbreaks.

▪ *A ban on animal movements difficult to control*

A fine knowledge of cattle movements requires both the ability to trace their owners and geolocate the animals. However, at present, health authorities only have partial knowledge of animal movements.

Some may escape notification requirements, such as grass sales[1] and individual summer pastures[2]. Even when movements are traced, the movement of asymptomatic animals or those in the incubation phase before confirmation of a first case of LSD in an area cannot be prohibited and constitutes a risk factor for the spread of the disease.

Health authorities are also powerless against "inappropriate" movements of cattle between the confirmation of LSD cases in an area and the publication of movement prohibition orders.

Finally, illegal movements of animals are by nature uncontrollable. They may consist of changes of plots without exemption within regulated areas and lead to the spread of the disease over a short distance. They may also involve changes of owners and occur over greater distances.

The arrival of the virus in France is thus linked to an illegal, undeclared movement of an infected but undetected bovine, because it was in incubation or asymptomatic, coming from Italy.

The ban on animal movements aims to avoid exchanges with these areas. Certain human behaviors can favor them. Asked by parliamentarians about the impact of protest gatherings organized in areas where the epidemic is rife on the spread of LSD, several participants estimated that these demonstrations could contribute to the dissemination of LSD in other geographical areas through the transport of either contaminated flies in cars or soiled substances on the demonstrators' shoes.

▪ *Screening tests still to be improved*

The screening tests currently used face several limitations.

For the virus to be present in the samples, they must have been taken from animals showing clinical signs: skin biopsies in the presence of nodules, blood in case of hyperthermia, and swabs in case of secretions (nasal, ocular, and oral). In asymptomatic animals, these samples do not contain the virus. Thus, there are no PCR tests to distinguish, among asymptomatic animals, infected animals from those that are not or that do not yet express the disease.

The virus has a cutaneous tropism. The viral load is high in the nodules, but it can be low or even zero in the blood and, consequently, difficult to detect or undetectable (in the absence of the virus in this compartment). Thus, the virus is detectable by PCR in the blood only during viremia, which corresponds to the animal's fever episode.

[1] A landowner rents his pastures to a farmer to graze his animals.
[2] Animals are sent to summer pasture on mountain plots to take advantage of natural forage resources.

The performance of the tests is measured by a number of parameters, including sensitivity and specificity[1]. A first estimate of this performance carried out by the European Union reference laboratory Sciensano gave the following results: the sensitivity of the tests varies between 90 and 100% for blood and between 95 and 100% for tissues.

The specificity of the tests ranges between 97 and 100% for those carried out from a blood sample and 100% for those carried out from a sample on the nodules. The performance of the tests (sensitivity and specificity) is always better on tissues than on blood.

Finally, the tests[2] allowing serological diagnosis[3] face a number of limitations that complicate their use. If their performance is good on infected animals, only 50% of vaccinated animals are detected. Furthermore, serological tests do not allow distinguishing between an infected animal and a vaccinated animal. The current performance of the only ELISA serological tool available to health authorities considerably limits the interest and use that can be made of it, particularly in vaccinated areas.

- *Vaccination that does not fully protect herds*

Vaccination constitutes an essential measure for eradicating LSD, but it only protects herds under certain conditions. It is ineffective during the incubation period, which explains why culling had to be carried out in herds where LSD cases had been detected in vaccinated animals.

When the vaccinated animal is healthy, effective protection only occurs fifteen days to one month after vaccination, this period being subject to strong individual biological variability. Moreover, some individuals—even if their number is very limited—will not develop any protection due to their own immune status. Consequently, a vaccination coverage of 80% to 90% of animals allows herd immunity to be achieved, i.e., to slow down viral circulation, without however completely interrupting it. In addition, protection against the disease through vaccination has a limited duration of 12 months.

➢ **More structural vulnerabilities**

- *A health network under pressure*

Repeated health crises could have deleterious repercussions on a health network that is already struggling and understaffed. Furthermore, threats and tensions in the field could durably alter the link between farmers and vets, especially as the number of the latter is insufficient in certain rural areas, particularly in Pyrénées-Orientales, Aude, or Gers. This profession has been regularly mobilized to face numerous animal health crises and is "exhausted" after the LSD episodes experienced in the summer and at the end of 2025. However, many other health threats weigh on France and Europe, such as small ruminant plague or foot-and-mouth disease.

- *Underfunded animal health research*

French research in animal health is underfunded. Insufficient resources are invested in prevention, even though it allows saving seven euros in crisis management for every euro invested. Public research must play a central role in strengthening knowledge about diseases, their detection, and monitoring. Currently, the lack of reliable tests is a weak link in the effective management of the disease, hence the need to undertake research on antigen tests to detect the virus in asymptomatic animals with a simple blood test. This scientific underinvestment is not specific to France: at the international level, few resources had been allocated to scientific research on LSD.

- *Increased risk factors due to the intensification of animal movements, climate change, disinformation campaigns, or even bioterrorist threats*

The intensification of animal movements, both legal and illegal, contributes to the multiplication of health crises and requires ensuring that exchanged products are free from any disease, particularly through the harmonization of health conditions between different trading partners. This is the purpose of the zoosanitary codes developed by the World Organisation for Animal Health (WOAH). Certification systems must be put in place, accompanied by inspections and audits, to ensure that the rules are respected.

Illegal movements are organized either by regular fraudulent actors or by non-farmers, non-professionals sometimes connected with other illegal activities.

Biological threats are a growing concern for public authorities. Intentional malicious acts are monitored by the General Secretariat for Defense and National Security (SGDSN). A senior official is specifically mobilized on this issue at the Ministry of Agriculture. At the global level, there is also a program for alerting and preparing veterinary services for biological threats. These are not limited to the release of a pathogenic agent. They also include cyber-attacks and disinformation messages. In some countries, vaccination campaigns have been strongly destabilized by an amplification of disinformation through social media, sometimes instigated from abroad, which interfered with the instructions given by veterinary services.

[1] Sensitivity measures the ability of tests to correctly detect truly sick (or positive) individuals. The higher the sensitivity, the lower the risk of false negatives.
Specificity measures the ability of tests to correctly identify individuals who do not have the disease or infection being sought. The higher the specificity, the lower the risk of false positives.
[2] These are ELISA serological kits.
[3] They allow the detection of the antibody response induced by viral infection.

In France, disinformation around vaccination has led to its rejection by a minority of farmers, with potentially harmful consequences for the management of the LSD crisis. Public authorities and scientists are encountering increasing difficulties in being heard and restoring the truth in the face of the explosion of false information and threats, particularly via social media.

Communication and education remain two essential tools for supporting depopulation actions and managing the major issues of acceptability that these measures raise for both farmers and the general public. In this regard, it is important to put into perspective the scale of the culling linked to the LSD epidemic by recalling that 3,500 cattle have been culled as part of LSD management since June 29, 2025, while 11,000 cattle are slaughtered daily for consumption.

Climate change has a non-negligible impact on epidemics. Firstly, it promotes the multiplication and thus the density of stable flies. In the case of vector-borne diseases, the more flies there are, the higher the probability of transmission. Furthermore, global warming affects the duration of the vector period. The milder the spring and autumn, the longer the insects that proliferate in warm periods benefit from an extended vector period. This is particularly true for diseases such as bluetongue (BT) or epizootic hemorrhagic disease (EHD). Climate change is therefore likely to accelerate the spread of epidemics.

- *Specificities of the cattle sector*

France is a major player in the European market for store cattle[1]. If 40% of them are fattened in France, the others are exported, mainly to Italy for males and Spain for females. Thus, the production of store cattle involves numerous animal movements, whether during the grouping of animals from several farms, their sale at fairs, or their export abroad. The implementation of measures to control LSD undermines this sector and shows its vulnerability to health risks.

A disease whose management varies by country, but whose eradication always requires strong, harmonized measures and vaccination

A disease whose management varies according to economic logic and country specificities

➢ A disease whose management varies according to the economic logic of farming

There are two types of farming: income farming and capitalization farming. Income farming, present mainly in developed countries, aims to generate regular income through the sale of products or animals, often in the short and medium term. Capitalization farming, predominant in developing countries, aims to accumulate capital in the form of livestock that can be mobilized in times of crisis. In this case, livestock products are not intended for sale but are consumed by the farmer.

The management of LSD varies according to the type of farming, and the economic repercussions are different. In developing countries practicing capitalization farming, vaccination is not systematic. Some cattle die from the disease, those that recover will not produce milk for a certain time, but their patrimonial value is not annihilated. In these countries, LSD is endemic, and animal suffering does not represent the same issue as in Western societies.

In countries practicing income farming, LSD has immediate disastrous consequences as it deprives farmers of their income, prompting public authorities to take measures to eradicate the disease.

➢ A disease whose management varies according to the specificities of countries

The insular nature of a territory could allow the disease to be controlled with different strategies. Thus, Japan has opted for partial culling to control the disease. However, the long-term success of this strategy remains to be proven: it will be necessary to wait at least one complete vector activity season associated with active surveillance to conclude the effective control of the disease in this country.

A disease whose eradication always requires strong, harmonized measures and vaccination

➢ The necessity of strong measures taken rapidly

The following examples illustrate the necessity of taking strong measures quickly to eradicate the disease. The countries of Southeast Asia were contaminated from 2019 and 2020. They implemented a regional strategy based on surveillance, restriction of movements, and mass vaccination. However, these measures were not strictly applied by all countries, and the disease was not eradicated. North Africa is also threatened by the endemization of LSD because the scale of the measures taken proved insufficient to contain it.

Outside the European Union, some countries have favored partial culling, but such a choice delays the eradication of the disease and requires the prolongation of vaccination and active surveillance efforts five years after the detection of the last outbreaks, as was the case in the Balkans.

➢ The importance of international coordination

Given the high contagiousness of the disease and the globalization of economies, a state can hardly eradicate it if its neighbors take insufficient measures. For example, the countries of Southeast Asia have adopted a common strategy. Nevertheless, very variable means are allocated to the fight against the disease, which compromises the efforts of countries pursuing a more offensive policy.

[1] A store cattle is a male or female calf, born from a suckler cow with which it remains until weaning, fed on milk and grass until its fattening workshop.

A similar situation is observed in North Africa. The disease, detected in the summer of 2023, likely spread from Libya to Algeria and Tunisia, which did not take the necessary measures to contain it. Morocco launched a preventive vaccination campaign, but there is a real risk of the disease becoming endemic in North African countries.

Conversely, the countries of the European Union agreed on a unique protocol applied uniformly in all countries affected by LSD, which proves effective in eradicating the disease.

➢ **The role of vaccination**

Mass vaccination is essential, both individually and collectively, to eradicate LSD, as shown by the following example. In Greece, LSD was detected in August 2015.

An emergency vaccination was implemented, but it was not carried out uniformly across the territory. At the end of 2015, the situation seemed under control, but new cases multiplied in the spring of 2016, quickly spreading to other countries in the region such as Bulgaria and Albania. A mass vaccination in these countries was carried out with the support of the European Commission. In 2017, the disease was confined in Albania to the few areas where vaccination had encountered difficulties.

On the other hand, seeking herd immunity across the entire territory does not currently seem desirable in a situation characterized by the absence of screening tests for asymptomatic animals. Herd immunity helps to slow down viral circulation but does not completely interrupt it, as vaccination does not completely prevent infection: if an animal is exposed to the disease on the day of injection or in the following days, it can be contaminated.

Generalized vaccination is essential to eradicate the disease, but it poses a problem of epidemiological visibility. Indeed, an effective vaccine reduces or eliminates the clinical signs of the disease. Vaccinated animals, even if infected, develop few or no symptoms. Without clinical signs, LSD can therefore circulate "silently" in herds in the absence of screening tests capable of detecting infected asymptomatic animals. This loss of traceability over a period of one year proves problematic, particularly in disease-free areas.

Generalized vaccination would also delay the date on which France could regain its disease-free status, as it would be necessary to wait 14 months from the moment the decision to stop vaccination was made. In the meantime, France would be considered a vaccinated area[1], and cattle exports would be subject to several conditions:

- cattle intended for export as well as those from the same farm but not intended for export must have been vaccinated for 28 days;

- cattle intended for export must not come from a farm located less than 20 kilometers from an LSD outbreak that has been detected for less than 90 days;

- within a 50-kilometer radius around the establishment where the cattle intended for export are located, all cattle must have been vaccinated for more than 60 days;

- export is subject to the agreement of the destination country as well as, where applicable, the transit country;

- cattle intended for export must undergo a prior clinical examination by a vet designated by the departmental directorate for population protection (veterinary health officer).

Furthermore, the destination country may impose additional conditions.

According to information obtained by the authors of the study, France lost its LSD-free status in the sense of the World Organisation for Animal Health (WOAH) as soon as the first case was detected. In this context, Morocco, for example, suspended imports of cattle from France.

Under European regulations, France only lost its disease-free status with respect to other EU members in the regulated and vaccinated areas (VZ I[2] and II[3]). However, the agreement of the destination country is essential before exports can resume. Currently, Italy, Switzerland, and Spain have indicated their agreement to receive cattle from certain vaccinated areas. Exports to these countries must not only meet the general conditions required at the international level but also additional conditions freely imposed by each country[4].

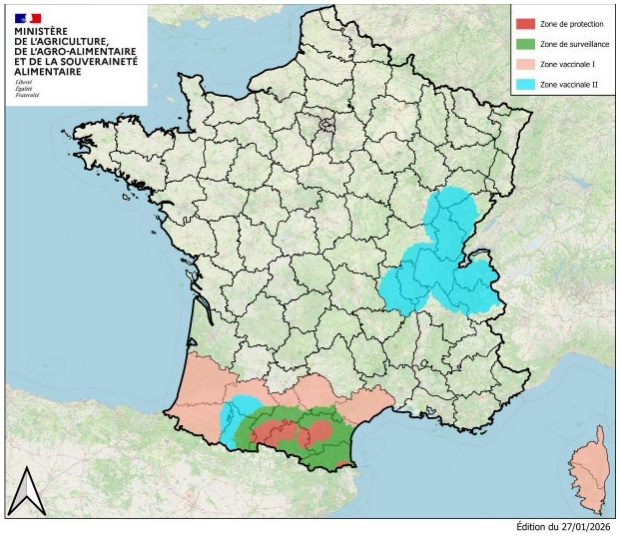
[1] The conditions for exporting cattle vary depending on the status of the exporting area with regard to LSD. When this area is considered a regulated area (a 50-kilometer geographical area around one or more disease outbreaks), exports are prohibited. When the area is considered a vaccinated area, exports are subject to a series of conditions. When the area is considered a disease-free area, these conditions are lifted. The transition from a regulated area to a vaccinated area is subject to the following conditions: 45 days must have passed since the last depopulation; 95% of cattle must be vaccinated; within a 50-kilometer radius around the outbreak, 75% of cattle must have been vaccinated for 28 days.

[2] Corsica and part of the Southwest are considered Vaccination Zone I.

[3] The former successive regulated areas ZR1 (which covers part of the departments of Jura, Isère, Ain, Savoie, and Haute-Savoie following the detection of outbreaks in Ain, Savoie, and Haute-Savoie between June 29 and September 6, 2025), ZR2 (which covers part of the departments of Ain, Isère, Loire, and Rhône, following the detection of an outbreak in Rhône on September 18, 2025), ZR4 (which covers part of the departments of Jura, Doubs, Côte-d'Or, Haute-Saône, and Saône-et-Loire, established on October 11, 2025, following the confirmation of an outbreak in the commune of Ecleux, in Jura) and ZR5 (established following the detection of an outbreak in a farm in Ain, on October 14, 2025) are considered Vaccination Zone II.

[4] Thus, Switzerland imposes a certificate of vehicle disinfection upon departure. Italy requires a certificate of good health issued by the veterinary health officer following the clinical examination of the cattle carried out 24 hours before shipment, a certificate of treatment of the cattle for 10 days with acaricides/insecticides and insect repellents filled out and signed by the farmer, and the negative result of a PCR analysis carried out on a sample of the cattle intended for export.

Regulated and vaccinated areas following the detection of LSD outbreaks in France (as of January 27, 2026)



Regarding a possible resurgence of the epidemic in the spring of 2026 and a potential evolution of the vaccination strategy in connection with it, science cannot provide an answer, even if several research programs have been recently launched to better understand LSD. However, the data collected in recent months can feed models that could be very useful in the event of a resurgence of the epidemic.

France's vaccination strategy for 2026 has not yet been finalized. Three options are being consulted with stakeholders until the end of January 2026: stopping vaccination, generalized vaccination, or continuing targeted vaccination in areas where it was mandatory in 2025.

Findings and recommendations of the Parliamentary Office

The public hearing allowed the following findings to be made.

Lumpy skin disease is a serious, highly contagious bovine viral disease with no curative treatment, responsible for significant economic losses and animal suffering.

Initially absent from French territory, it spread rapidly in 2025. Its eradication is consensual at the European level and is based on four inseparable pillars: early surveillance, total depopulation of infected outbreaks, prohibition of cattle movements, and mandatory vaccination.

The participants highlighted the reactivity and overall effectiveness of French management, thanks to solid health infrastructures, a high-performing laboratory network, rapid mobilization of vets, and a massive vaccination campaign.

However, several vulnerabilities persist: detection that is still too dependent on the vigilance of farmers, difficulties in controlling animal movements, ineffective screening tests on asymptomatic animals, incomplete vaccine protection and structural fragilities in the veterinary network and animal health research.

At the international level, the strategies for managing LSD differ according to economic and geographical contexts. Nevertheless, experience shows that only a rapid, coordinated response based on strict measures, associated with mass vaccination, can prevent the disease from becoming endemic.

International coordination therefore appears essential, particularly in a context of globalization of trade and increased health risks.

Finally, although the question of general vaccination has not yet been decided at the government level, the participants noted that it would temporarily prevent the monitoring of the epidemic in the absence of effective serological tests. In addition, it would delay the date on which France could regain its disease-free status, which would subject French beef exports to restrictive conditions during this period.

In light of these observations, the Office makes the following six recommendations.

1. Continue Educational Efforts with the General Public and Farmers Without Overlooking the Vulnerabilities of the System

Confronted with disinformation amplified by social networks, public authorities are encountering increasing difficulties in delivering objective information that is audible to both the general public and farmers. Nevertheless, it is essential to continue this educational work by explaining the rationale for the measures and using all means of communication, particularly social networks.

For the sake of transparency, it is also important to explain the context in which decisions are made. Thus, the current absence of reliable serological tests to distinguish infected animals from vaccinated animals makes it difficult to evaluate the effectiveness of vaccination campaigns, entails a risk of silent circulation of the disease, and complicates epidemiological surveillance. These difficulties must be explained to the population while emphasizing that they do not call into question the relevance of the LSD eradication protocol implemented at the national and European levels.

2. Enforce compliance with the national protocol aiming at the eradication of LSD

In the current state of scientific knowledge on LSD and virus detection techniques, the eradication of the disease requires compliance with the four pillars of the national protocol: surveillance for early detection of the disease, total culling of cattle in the infected epidemiological unit, prohibition of cattle movements in a regulated area of 50 kilometers, and mandatory vaccination in said area.

The public hearing showed the deleterious effects of non-compliance with this protocol. Thus, the responsibility of one or more illegal movements of cattle in the spread of LSD in Occitanie is beyond doubt. Similarly, at the end of 2025, Spanish health authorities had recorded an outbreak in an extensive farm of 106 cattle in the Alt Empordà region. However, only part of the herd had been vaccinated in October 2025, and four unvaccinated animals were confirmed positive by PCR test for the wild strain of the virus.

French authorities must therefore ensure that the national protocol aimed at eradicating LSD is respected by all. Non-compliance must be sanctioned, as must the intolerable threats and intimidation suffered by vets.

3. Invest in animal health research to ensure better knowledge of diseases, their detection, and monitoring

Several participants emphasized the underfunding of animal health research. The limitations of virus detection tests for asymptomatic animals, the absence of high-performance tests for serological diagnosis, the lack of epidemiological models to anticipate the evolution of the disease and adapt the response of public authorities are all examples of areas in which animal health research must invest and for which it lacks resources.

During the hearing, mention was made of a "flash" call for projects recently launched by the French National Research Agency (ANR) on Pox viruses, including LSD. A national "Sustainable Livestock Farming" program will also be exceptionally mobilized on the disease. Nevertheless, it appears essential to massively invest in animal health research to ensure better knowledge of diseases, their detection, and monitoring, and to find a treatment for LSD.

4. Ensure a sufficient rural territorial network of vets at the service of farmers, capable of being mobilized in crisis situations

The LSD crisis has shown the importance of a sufficient veterinary presence in rural areas to establish a relationship of trust with farmers and ensure early detection of the disease. The greatest tensions were often observed in areas with the lowest density of vets. It is therefore essential to ensure a sufficient rural territorial network of vets. The 2010 Agricultural Modernization Law included measures to avoid veterinary deserts in rural areas. It would be relevant to assess this and, if necessary, adapt its provisions to the current situation.

5. Strengthen controls on animal movement to better guarantee their traceability

The traceability of animals plays a key role in the management of health crises to quickly identify outbreaks and reduce the spread of the disease. There are many traceability tools in France and Europe to ensure the individual identification of animals (animal passports) and record their movements in centralized databases. Furthermore, farmers are subject to regulatory obligations (declaration of any animal movement, keeping registers).

However, it is necessary to ensure that the regulations are properly respected through the strengthening of unannounced controls and the implementation of IT tools to simplify processes (development of automated interfaces between farm software and the national identification database). Furthermore, it is essential to secure critical points of circulation through strengthened border controls.

6. Adapt sector strategies to limit the spread of epidemics

The economic models of certain livestock systems are based on significant animal movement, making them vulnerable in the event of a health crisis. As these crises are likely to multiply and regulations on animal welfare are becoming increasingly strict regarding the movement of live animals between countries, reflection is needed to adapt sector strategies and reduce animal movements. Thus, the blocking of animals, particularly store cattle, in the context of LSD, raises the medium-term question of relocating the fattening sector.

The six recommendations of the Office

- Continue educational efforts with the general public and farmers without overlooking the vulnerabilities of the system
- Enforce compliance with the national protocol aiming at the eradication of LSD
- Invest in animal health research to ensure better knowledge of diseases, their detection, and monitoring
- Ensure a sufficient rural territorial network of vets at the service of farmers, capable of being mobilized in crisis situations
- Strengthen controls on animal movement to better guarantee their traceability
- Adapt sector strategies to limit the spread of epidemics

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