



Lumpy Skin Disease Contingency Plan Template

This contingency plan template is the Response component within a broader LSD Emergency Management Plan (that also includes Prepare, Prevent, Detect and Recovery). Additional information is available within FAO's Good Emergency Management Practices ([GEMP](#)) Manual.

This template has been developed by FAO Regional Office for Europe and Central Asia. The template needs to be adapted to the country situation, paying particular attention to the bold red text.

Introduction

A lumpy skin disease (LSD) contingency plan is as a key instrument for control of a disease emergency. The general objectives of this contingency plan template is that:

- **Competent Veterinary Authorities** are able to respond early and manage effectively, an LSD outbreak in order to eradicate the disease and restore freedom as fast as possible;
- Veterinary staff at all levels have an outline of their roles and responsibilities during an LSD outbreak;
- Cattle farming community and relevant agencies over which the veterinary administration has no direct control will co-operate with the central veterinary authorities and provide assistance to the veterinary services in disease eradication;
- Personnel, equipment and financial resources are made available quickly enough in order to avoid any delays in dealing with the emergency situation.

The contingency plan is elaborated taken into consideration the geopolitical position of **Country**, its animal health status, structure of the livestock sector, domestic bovine population, surveillance, prevention and control strategies in place, administrative organization of the country, incident management system structure and epidemiological situation of LSD in the region.

The contingency plan will be revised and improved by the appointed person/unit, within the **Competent Veterinary Authority** whenever necessary and at least once every five years.

Table of Contents

Chapter 1 General description of the lumpy skin disease and risk assessment

- 1.1 Clinical signs
- 1.2 Economic importance
- 1.3 Causative agent
- 1.4 Persistence of the virus
- 1.5 Epidemiology
 - 1.5.1 Host range
 - 1.5.2 Transmission
 - 1.5.3 Geographic distribution
- 1.6 Risk assessment

Chapter 2 Legislation

- 2.1 General legislation
 - 2.1.1 National legal classification of LSD, including the official list of notifiable diseases
 - 2.1.2 Powers to enter affected holdings and take samples on suspicion
 - 2.1.3 Powers to impose quarantine on infected and suspect premises
 - 2.1.4 Powers to impose movement controls
 - 2.1.5 Powers to cull all susceptible stock on infected premises/units/villages
 - 2.1.6 Powers to dispose carcasses and infected material through rendering, burying or burial
 - 2.1.7 Powers to clean and disinfect infected premises/units/villages before restocking
 - 2.1.8 Powers to require compulsory vaccination
 - 2.1.9 Powers to regulate importation of animals, animal products and other sources
 - 2.1.10 Legal basis for compensation for culled animals and materials destroyed in disease-control options
 - 2.1.11 Legal requirements for importation of vaccines and authorization for use
 - 2.1.12 Legal procedure for rapid vaccine import in case of an emergency situation
 - 2.1.13 Legal procedure for import of non-GMP or incomplete dossier vaccine in case of emergency situation
 - 2.1.14 Legal basis for registration of bovine farms and identification of bovines

Chapter 3 Legal acts indicating government budget(s)

- 3.1 Personnel costs
- 3.2 Transport costs
- 3.3 Farmers' compensation for cattle culled or died of LSD
- 3.4 Equipment and consumable items
- 3.5 Vaccines and vaccination campaign
- 3.6 Cattle identification, vaccination, movement and health recording database
- 3.7 Other costs to be considered

Chapter 4 National reference laboratory and sample collection from suspected animals

Chapter 5 Chain of command and disease control

- 5.1 Structure of the Veterinary Services and Competent Veterinary Authority (CVA)
- 5.2 National Disease Crisis Center (NDCC) and the chain of command
 - 5.2.1 The duties and responsibilities of the NDCC
 - 5.2.2 Personnel and location of the NDCC
 - 5.2.3 Materials and equipment required for the NDCC
- 5.3 Regional Disease Crisis Center (RDCC) and the chain of command
 - 5.3.1 Duties and responsibilities of the RDCC
 - 5.3.2 Materials and equipment required for the RDCC
- 5.4 National advisory expert group
- 5.5 Operational teams in the field
- 5.6 List of available additional experts
- 5.7 Collaboration with other stakeholders

Chapter 6 Overall policy for lumpy skin disease

Chapter 7 Lumpy skin disease control strategy

- 7.1 Vaccination against LSD
- 7.2 Cattle identification and vaccination records
- 7.3 Stamping out policy
- 7.4 Culling methods
- 7.5 Disposal of carcasses
- 7.6 Compensation for animals culled due to or died of LSD infection
- 7.7 Quarantine and movement controls
- 7.8 Zoning
- 7.9 Decontamination, cleaning and disinfection of personnel, premises and environment
- 7.10 Treatment of infected animals
- 7.11 Treatment of animal products and by-products
- 7.12 Vector control

Chapter 8 Risk Communication

Chapter 9 Surveillance measures for observation area

Chapter 10 Release of quarantine and further restrictions

Chapter 11 Conducting epidemiological surveys in affected holdings and regions

Chapter 12 Evaluation and update of the contingency plan

SUGGESTED ANNEXES

APPENDICES

Chapter 1. General description of lumpy skin disease and risk assessment

See [FAO Lumpy skin disease field manual](#) (2017) for more information.

1.1 Clinical signs

Lumpy skin disease is a contagious, transboundary viral disease of cattle and domestic buffalo, characterized by high fever, firm round skin nodules of one to seven cm in diameter, ulcerative lesions in the mucous membranes of the eyes and inside the mouth and nasal cavities as well as swelling of the lymph nodes. Internal pox lesions may occur in the mucous membranes of throughout the gastrointestinal and respiratory tracts. Infected animals show excessive salivation, eye and nasal discharge.

Morbidity rate varies between 2 and 45% and mortality is usually low, less than 10%. Incubation time is usually 4 to 7 days but can be up to 28 days.

1.2 Economic importance

The disease causes substantial production losses for the cattle farming industry at all levels due to a sharp drop in milk yield, decreased fertility in cows and bulls, abortions, damaged skins and hides, decreased weight gain, and sometimes death. Additional losses are caused by restrictions to cattle movements and trade.

1.3 Causative agent

LSD is caused by the lumpy skin disease virus (LSDV) which belongs to the genus *Capripoxvirus* within the family *Poxviridae*.

1.4 Persistence of the virus

LSDV is a very stable virus and survives well in the environment, including temperatures below 0°C temperatures in wintertime and dry summer conditions. The virus may remain viable for years inside scabs and crusts dropping off from skin lesions. Infectious scabs are shed into the environment by infected animals.

Infected cattle excrete infectious virus into saliva, nasal and lacrimal secretions, as well in milk and semen. Currently it is not known how long an infectious virus survives in these secretions. Some tentative research results are given in EFSA Scientific Opinion (2015) for LSD. However, since there is not extensive research data available, it should be considered that these secretions may remain infectious for a longer period of time.

1.5 Epidemiology

1.5.1 Host range

LSD affects domestic cattle and Asian water buffalo. All cattle breeds, both genders and all ages are susceptible, but severe disease is more common in dairy cows during the peak of lactation. LSD is not zoonotic.

1.5.2 Transmission

Cattle movements from infected regions are believed to be the most common mode of introduction of LSD into previously disease-free areas.

Virus is transmitted by blood-feeding vectors, such as biting flies, mosquitoes and ticks and possible also other insects feeding frequently and changing hosts between feeds. However,

transmission by indirect contact may occur via feed and water contaminated with saliva, lacrimal and nasal secretions or via semen, milk and sometimes by direct contact between infected and naïve cattle.

1.5.3 Geographic distribution

LSD is widespread and endemic throughout Africa, excluding Algeria, Morocco, Tunisia and Libya. Since 2012, LSD has rapidly spread throughout the Middle East and beyond. In 2013, LSD spread to Turkey, where it is currently endemic. This was followed by outbreaks in Azerbaijan (2014), Armenia (2015) and Kazakhstan (2015), southern Russian Federation (Dagestan, Chechnya and Krasnodar Kray and Kalmykiyan) and Georgia (2016). Since 2014 LSD has spread to the northern part of Cyprus (2014), Greece (2015) and the Balkans (2016).

Add a section that describes the geographic distribution in the country writing this plan

1.6 Risk assessment for LSD

In order to describe the overall risk of LSD, it is necessary to conduct a risk assessment, which should be a vital element of the contingency plan. Such an assessment should aim to qualitatively describe the current risk (both probability and consequence) of LSD for the country. For list of template questions please see **Appendix 1**.

Add here the findings of said risk assessment and list the priorities/guidance for response [contingency] based on the risk assessment outcomes

Chapter 2 Legislation

2.1 General legislation

Add here all relevant legal acts, examples listed below

- 2.1.1 National legal classification of LSD, including the official list of notifiable diseases
- 2.1.2 Powers to enter affected holdings and take samples on suspicion
- 2.1.3 Powers to impose quarantine on infected and suspect premises
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- 2.1.14 Legal basis for registration of bovine farms and identification of bovines

Chapter 3 Legal acts indicating government budget(s)

Add here your national legislation

- In an event of initial incursion of LSD, the emergency budget will be allocated from following source(s):
- In an event of LSD epidemics the government budget will be allocated from following source(s):
- Mechanism to access funds:

Budget needs to cover the following costs if not covered by other stakeholders:

3.1 Personnel costs

- Official and private veterinarians carrying out LSD related actions in the field.
- Diagnostic laboratory veterinarians and technicians.
- Expert teams carrying out stamping-out measures at the farms and estimating the market value of animals that were culled or died of LSD.
- Vaccination and surveillance teams.

- Costs of stamping out.
- Imposing and maintaining quarantine and movement restrictions by other units.

3.2 Transport costs

- Vehicles and petrol for veterinary teams and other forces.
- Transport of excavators for the disposal of carcasses by burial.
- Trucks to transport of infected carcasses to rendering plants or for incineration.
- Transport of mobile incinerators to the affected holdings.

3.3 Farmers' compensation for cattle culled or died of LSD

- Value of cattle that were culled because of LSD.
- Operational/administrative costs.
- Documentation of fund expenditure.

3.4 Equipment and consumable items

- Consumables for sample collection and laboratory diagnosis (reagents and kits).
- Transport of samples to international reference laboratories (if required).
- Culling materials such as sedatives and euthanasia solutions, needles, syringes and other materials, bolt pistol, etc.
- Consumables for vaccination (needles and syringes).
- Veterinary treatments for cattle.
- Disinfectants used for disposal of carcasses.
- Materials for cleaning and decontamination: effective disinfectants, detergents suitable for use in animal facilities and environment, device to spray car wheels and equipment, etc.

3.5 Vaccines and vaccination campaign

- Costs of vaccines.
- Cold storage facilities for the vaccines.
- Delivery of the vaccines to the districts.
- Payments for contracted private veterinarians to carry out the vaccination campaign.

3.6 Cattle identification, vaccination, movement and health recording database

- Costs of administration and maintenance.

3.7 Other costs to be considered (usually not covered by government, could be by other insurance)

- Milk loss (not allowed to be sold).
- Cattle not allowed to be sold.
- Losses related to increased density on farm, secondary diseases.

- Supportive treatment to sick animals.
- Special maintenance requirements on farm during the outbreak.
- Losses to related cattle products processing businesses.

Chapter 4 National Reference Laboratory and sample collection from suspected animals

Tentative field diagnosis of LSD is confirmed by laboratory testing by the National Reference Laboratory. Test results should be sent to the **Central Veterinary Authority**, regional veterinary offices and to the sender of the samples.

When samples are collected, the health of all bovines in the herd should be checked. Samples should be collected from those animals showing fever, lumps and/or other clinical signs of LSD. Additional blood samples should be collected from healthy-looking animals. Samples must be collected from a suspected herd in sufficient numbers and volumes. Skin lesions and scabs, saliva or nasal swabs, EDTA blood are the preferred sample materials. Saliva and nasal swabs are collected using sterile swabs and placed to sterile tubes for transportation with or without transport medium. Serum samples can be collected for antibody detection.

It is highly important to find the right balance to sample enough animals (holdings) to rule in or rule out the disease, but at the same time avoid sending too many of samples to the laboratories, which they cannot analyze in time. Furthermore sampling in free areas should not be neglected during an outbreak.

Consultation with the laboratory on their capacity both before and during an outbreak is vital.

Add here the name, address, telephone number and contact person of the national reference laboratory.

Chapter 5. Chain of command and disease control

5.1 Structure of the Veterinary Services and Competent Veterinary Authority (CVA)

Add here the organogram of the Veterinary Services as Figure 1.

Describe here the chain of command including the responsible Ministry/ies and subordinated Veterinary Departments, Units including the Chief Veterinary Officer and Unit Managers and their responsibilities.

An example:

- The Ministry of Agriculture has an overall responsibility for food safety, animal and plant health and animal welfare;
- The Subordinated Veterinary Department is headed by a Chief Veterinary Officer (CVO) and comprises the following Units/Sections;
- The Animal Health/Veterinary Section has XXX divisions and is responsible for the control and eradication of LSD;

- d. Regional Veterinary Offices are located in different districts/provinces/regions (Add here the details);
- e. Animal Health Departments of the Regional Veterinary Offices are run by official district veterinarians (Add here the number of district veterinarians);
- f. Private veterinarians are contracted by the central veterinary authority to assist in carrying out eradication and control measures in the field. (Add here the number of private veterinarians).

5.2 National Disease Crisis Center (NDCC) and the chain of command

A National Disease Crisis Center (NDCC) for eradication of LSD is created by the order of the CVO. There should be pre-set scenarios, when the CVO would declare activation of the crisis management organization, to ensure better overall efficiency.

In an emergency outbreak situation, the general aim of the NDCC is to ensure the coordination and execution of different disease control and eradication tasks, including readily available facilities and equipment.

Directions and orders given by NDCC are obligatory for all staff participating the disease eradication measures.

The chain of command is shown in Figure 2 below:



Figure 2. Chain of command

5.2.1 The duties and responsibilities of the NDCC

- To implement and lead accepted control strategy and regional contingency plans;
- To provide regional veterinary services with sufficient staff, materials and administrative support
- To manage the financial provision of the action plan and to confirm availability of sufficient funds to cover the expenditures related to the epidemic;
- To supervise, coordinate and control the activities of the regional crisis centers;
- To order urgent emergency/preventive vaccination (when appropriate);
- If needed, to consult external experts from other appropriate bodies, such as national or international veterinary research institutes

- To define the zones (such as restricted, control, surveillance, disease free etc.) and the measures to be taken there;
- To liaise with the national reference laboratory responsible for the diagnostic of LSD
- To liaise with appropriate international veterinary organizations, such as (but not limited to) the World Organisation for Animal Health (OIE), the Food and Agriculture Organization (FAO) and the European Commission (EC);
- To notify neighboring countries within 24 hours of the LSD confirmation about the disease using direct contact, OIE WAHIS, FAO, ProMed and/or other appropriate route/s;
- To collect, analyze and disseminate essential epidemiological data on LSD outbreaks and to remain permanently alert to manage the disease outbreaks;
- To liaise with the cattle farming industry, including private cattle owners and companies, producing and trading with agricultural products;
- To disseminate information on LSD and to organize awareness campaigns;
- To organize initial training programmes on LSD and re-training of the staff;
- To liaise with public media and concerned individuals, firms and organizations of the cattle sector.

5.2.2 Personnel and location of the NDCC

The NDCC staff is appointed by the CVO. The structure of the NDCC is shown in Figure 3, but it may be amended if the situation requires it and can include further teams like legal.

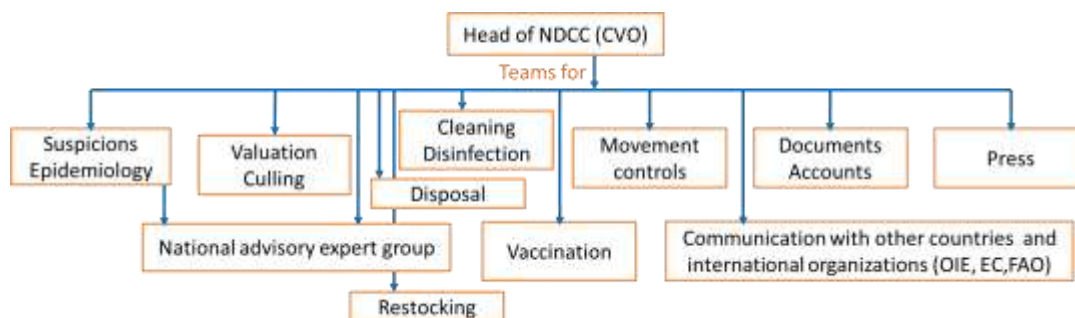


Figure 3. The general structure of National Disease Crisis Center (NDCC)

5.2.3 Facilities, materials and equipment required for the NDCC

- Facility able to accommodate personnel (i.e. office space) and provide adequate space for the various functions and equipment needed;
- Means of communication, including computers, software, telephones, faxes, e-mail/internet access, printers, etc.;
- Maps, GPS devices and other means, which may be used in control operations;
- List of personnel and their qualifications and responsibilities, who may be urgently summoned in case the Regional Disease Crisis Centre needs assistance;
- List of organizations (including contact information), which need to be contacted immediately in case of LSD occurrence;

- Stocks of personal protective equipment (PPE), disinfectants, instruments for disease investigation, drugs for sedation and/or killing of animals, sampling equipment, and documents required for the epidemiological investigation of LSD;
- Vehicles and petrol.
- Facilities to park, change and disinfect vehicles;
- Locations to communicate with media (press conference), if performed by the RDCC.

Add here the physical address and contact details of the NDCC

5.3 Regional Disease Crisis Center (RDCC) and the chain of command

After consultation with the NDCC, the director of the Regional Office shall establish the Regional Disease Crisis Center (RDCC). The structure of the RDCC is shown in Figure 4.

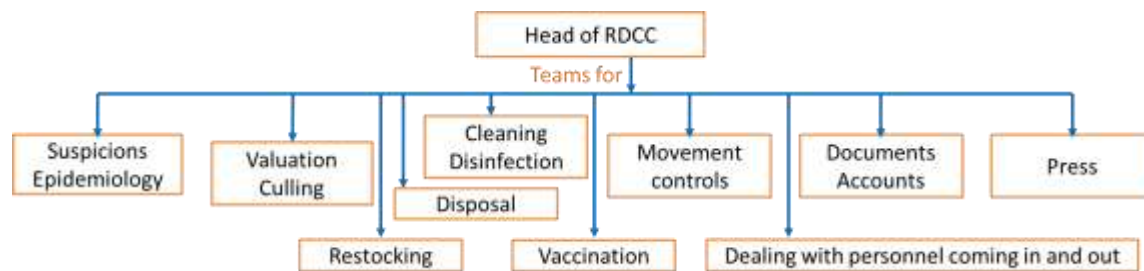


Figure 4. The structure of the Regional Disease Crisis Center (RDCC)

5.3.1 Duties and responsibilities of the RDCC

- To report new outbreaks immediately to the NDCC and to keep constant contact with the NDCC for the control/eradication of the disease;
- To liaise local government administration, cattle-breeding holders, producers, companies and organizations;
- To implement the regional LSD contingency plan on their territory and to carry out outbreak management activities in different zones;
- To participate in culling and evaluation of the market-value of culled animals;
- To collect and transport of diagnostic samples and liaise with the national diagnostic reference laboratory;
- To implement quarantine measures and to execute the control of cattle movements;
- To liaise with the local police, military or other forces to get help in the enforcement of prohibitive and limitation measures during disease outbreaks, such as in securing the control over the movements in the affected area, the closure of cattle markets, and the prevention of illegal animal trade;
- Control the transportation of the clinically healthy animals to the respective slaughterhouse and to exercise control over the slaughter;
- To enhance preparedness and awareness on LSD in the region by organizing awareness dissemination activities, including local training courses for farmer associations on early recognition of characteristic clinical signs, the importance of reporting, modes of transmission, epidemiology, control and eradication;

- To carry out clinical surveillance in the affected area and epidemiological outbreak investigations;
- The RDCC is responsible of keeping updated contact information lists comprising:
 - ✓ The names of veterinary experts in charge of control measures;
 - ✓ The names of veterinary experts, who are private practitioners;
 - ✓ The names of police inspectors, who would help in the implementation of measures;
 - ✓ The names of transport carriers of animals;
 - ✓ Slaughterhouses;
 - ✓ The names of the regional representatives of stock-breeding associations;
 - ✓ The names of animal traders;
 - ✓ The names of representatives of the Regional Governmental Agencies;

5.3.2 Facilities, materials and equipment required for the RDCC

The RDCC center needs to be equipped with

- Facilities to accommodate staff (i.e. office space) and space for materials and equipment needed
- Means of communication (computers, software, telephones, faxes, e-mail/internet access, printers and etc.);
- Maps and GPS devices;
- Protective clothing;
- Disinfectants and detergents;
- Equipment for disease investigation and sampling;
- Drugs for sedation and/or euthanizing cattle;
- Documents required for disease recording and reporting;
- Facilities to park, change and disinfect vehicles;
- Locations to communicate with media (press conference), if performed by the NDCC.

In addition, RDCC must be provided with vehicles, suitable for the transport in the region and sufficient amount of petrol.

Add here the physical address and contact details of the RDCCs

5.4 National advisory expert group

The National LSD expert group or advisory team is created by the NDCC. The aim of the group is, when required, to assist the NDCC to provide methodological support to the RDCC in order to implement the action plan for eradication of the LSD in the field.

The expert group is directly subordinated and reports to the CVO. The CVO can, if necessary, establish an *Ad Hoc* expert group to study specific veterinary issues, such as risk assessment, modeling, cost-benefit analysis, etc.

The National advisory expert group should comprise experts on following fields:

- diagnostic methods for LSD;
- virology;
- epidemiology;
- outbreak management;
- entomology;
- expert from the Central Veterinary Authority.

Add here the names and updated contact info of one or more experts available for each subject.

5.5 Operational teams in the field

Operational teams comprise following personnel:

- Stamping-out (culling, disposal, cleaning and disinfection teams), including staff competent to evaluate the market value of culled animals for compensation purposes;
- Vaccination teams;
- Outbreak investigator teams.

Add here the duties and responsibilities of each team and to whom they report.

List here relevant Standard Operating Procedures (SOPs) expected from the teams.

5.6 List of available additional experts

The **Central Veterinary Authority** keeps a register on the names and addresses of other experts, who are experienced in control and eradication of LSD in the field and may be used in the event of a disease.

If necessary, the **Central Veterinary Authority** can send veterinary experts from other regional offices or research institutes to the outbreak area. Also, private veterinary experts, who are practitioners, may be contracted.

In order to control and eradicate outbreaks, the **Central Veterinary Authority** may contract other specialists (e.g. excavator operators, abattoir workers, laborers, keepers etc.).

Add here the names and contact info of suitable qualified veterinary colleagues.

5.7 Collaboration with other stakeholders

A plan needs to be drawn up for collaboration with other ministries (environment/forestry/wildlife), police, army and NGO's or industry groups.

Also the **Central Veterinary Authority** may use staff or resources from other Ministries if needed for outbreak management.

Chapter 6. Overall policy for lumpy skin disease

The overall objective is to quickly eradicate LSD from the country. Eradication is usually achieved by the application of large-scale LSD vaccination campaigns in affected and at-risk areas, using a vaccine with demonstrated efficacy against LSDV.

The decision whether to kill all infected and in-contact cattle or only those showing clinical signs of LSD, depends on which culling policy is feasible within the country/region, considering the size and location of epidemiological units.

Culling is followed by the destruction and disposal of carcasses, by-products and all potentially contaminated materials such as feed, manure and beddings and their environment. Thorough cleaning and decontamination of infected facilities, areas and equipment is required.

Other supportive measures such as strict cattle movement restrictions and quarantine procedures on infected and neighboring premises are implemented.

Chapter 7 Lumpy skin disease control strategy

7.1 Vaccination against LSD

Annual LSD vaccination of the whole cattle and water buffalo population should be carried out in affected countries. Also provision for vaccination for captive and or zoo animals should be considered.

When possible, the vaccination campaign should be harmonized with neighboring countries.

Various scenarios should be considered to determine the extent of the vaccination, e.g. if the entire country or only specific parts would be vaccinated.

Calves from naïve mothers should be vaccinated at any age, while calves from vaccinated or naturally infected mothers should be vaccinated when they are between three and six months.

Mass vaccinations should be carried out a minimum of three weeks before cattle are allowed to move or the onset of the seasonal cattle movements, e.g. seasonal grazing.

Farmers should be informed about the potential adverse reactions following the use of live attenuated LSDV vaccines in cattle, such as a local reaction at the vaccination site, short-lived fever and slight drop in milk yield, and, in rare cases, generalized skin reaction (also known as “Neethling disease”).

Emergency vaccination may be performed upon decision of the CVO. The emergency vaccination can be conducted either when LSD is present in the country or when the risk is considered high, but the disease is not confirmed yet.

It should be also laid down, under which circumstances should emergency vaccination be initiated (detection within country or already in case of notification of a neighboring country with an outbreak close to the border).

For any emergency vaccination, a special vaccination plan should be developed, which takes into consideration:

- the disease situation;
- the geographical area in which the emergency vaccination is to be carried out;
- the number of animals and their distribution;
- the approximate number of animals to be vaccinated;
- the stockpile planned;
- the characteristics and shelf-life of the vaccine.

For in depth guidance on how to prepare an emergency vaccination plan, please see Appendix 2.

Add here the procedure for purchase of vaccines, including tendering process if required.

Add here the plan how the cold storage and delivery of the vaccines to the districts will be organized.

Add here if any vaccine stocks are available in your country.

7.2 Cattle identification and vaccination records

Describe here the cattle ID/movement/vaccination/health record system and database

An example:

The cattle owner is responsible of registering the animals and their movements into an appropriate category. All bovines above the age of 21 days must be included. When vaccinating calves before the age of 21 days, they must be ear-tagged and added to the register.

Upon the request of the **Central Veterinary Authorities**, animal owners are responsible for submitting updated information without delay.

In addition, data on milk, milk products, meat, meat products, carcasses, hides and skins, semen, embryos, ova and animal feed should be also recorded.

7.3 Stamping out policy

The **Central Veterinary Authorities**, in collaboration with the **Ministry**, will make the decision whether and to what extent stamping-out policies are to be implemented in affected farms. Culling and disposal of carcasses should be conducted as quickly as possible, complying with all animal welfare rules, safety and environmental requirements.

Possible stamping-out policies include **(Please adjust this part to the chosen policy in your country)**:

- A total stamping-out policy is implemented including culling of all infected and in-contact cattle in affected holding/epidemiological unit.
- A modified stamping-out (culling only those animals showing LSD clinical signs may be practiced when the slaughtering of all animals is not feasible nor affordable, pursuant to the decision by **Central Veterinary Authorities**.
- No stamping-out policy is practiced and infected animals are isolated and symptomatic treatment is administrated.

Regardless of the selected stamping-out policy, severely affected animals should always be removed from the herd because they serve as a constant source of contamination for biting and blood-feeding vectors, as well as for welfare reasons. In addition, the recovery of these animals takes usually several months and they are not likely to re-gain the same level of production prior to LSD infection.

7.4 Culling methods

Affected animals should be destroyed under the supervision of the RDCC/stamping-out team to reduce the risk of virus transmission. Appropriate methods for culling cattle include premedication and injection with an overdose of barbiturates or other drugs, penetrative captive bolt, or free bullet. The chosen culling method should, in any case, ensure the welfare and minimum suffering of the animals.

7.5. Disposal of carcasses

Disposal of carcasses is conducted by burial, burning or rendering according to the nationally agreed operation procedures **(Please, describe your chosen methods here).**

7.6 Compensation for animals culled due to or died of LSD infection

Describe here the policy to compensate the cattle culled or died of LSD in your country. See below some suggestions.

Stamping-out needs to be combined with a timely and fair compensation programme.

- Compensation can cover 100% of the market value of the animal.
- If only cattle with clinical signs are killed and the rest of asymptomatic cattle are sent for slaughter, the compensation may cover the difference between the market value and the slaughter value.
- The compensation could be monetary or as live immunized replacement animals.
- The compensation should be received, as soon as possible. .

7.7 Quarantine and movement controls

Movement and trade of live cattle needs to be halted without delay after suspicion at the affected farm and, after confirmation, in the whole region.

Severe penalties are applied in cases of illegal movements.

Where nomadic and seasonal farming practices are used, cattle are vaccinated at least 28 days before the movement.

Movements of unvaccinated breeding bulls are not allowed during outbreaks.

Slaughter of cattle is allowed only in slaughterhouses located within infected zones because open transport vehicles and waiting time at the destination may allow sufficient time for blood-feeding flying vectors to transmit the virus.

When no stamping-out is implemented at the farm, all suspected or infected animals should be immediately separated from the rest of the herd and from any locations where susceptible animals are at-risk of infection or contamination **(Delete if not applicable in your country.)**

7.8 Zoning

If the country is divided into vaccinated and non-vaccinated zones, no movement of unvaccinated animals should be allowed between different zones. Vaccination must be carried out 28 days before the movement and animals must be accompanied by a health certificate

The size of zones and specific measures in the zones should be specified. **(Delete if not applicable in your country.)**

7.9 Decontamination, cleaning and disinfection of personnel, premises and environment

LSD virus is very stable and survives well in extremely cold and dry environments. Infected animals shed scabs from skin lesions to the environment. Inside of these scabs the virus may remain infectious for several months.

Thorough cleaning and disinfection using effective disinfectants should be performed on the affected farm, trucks, equipment, personnel's clothes, premises and potentially contaminated environment.

Although LSDV is sensitive to most disinfectants and detergents. Mechanical removal of surface material such as dirt, manure, hay and straw is required before disinfection. The disinfectant used should be able to penetrate the organic material that the infectious virus may be surrounded by in the environment.

7.10 Treatment of infected animals

(Delete if not applicable in your country.) There is no effective treatment available for a viral infection. In case no stamping out is implemented at the farm, symptomatic treatment, i.e. anti-inflammatory painkillers, may be used to lower the fever and keep animals eating. In some cases, antibiotics need to be used to treat secondary bacterial infections.

7.11 Treatment of animal products and by-products

Cattle showing any clinical signs of LSD do not qualify for slaughter or human consumption, and the milk from these animals needs to be destroyed.

Meat and milk from other animals from the herd can be used only if the animals do not show fever nor any other clinical signs of LSD. However, the milk and meat must be always heat-treated.

7.12 Vector control

Efficient insect control on cattle or in the holding may reduce the rate of mechanical transmission, but cannot totally prevent it, particularly when cattle are free roaming or kept in fenced pastures. The application of spot-on repellents can work for the protection of cattle from insects for a short time.

When insecticides are used, withdrawal times for milk and meat need to be considered.

Limiting vector breeding sites, such as standing water sources, slurry and manure, and improving drainage in the holding are sustainable, affordable and environmentally friendly ways to reduce numbers of vectors on and around cattle.

Chapter 8 Risk Communication

Establish of a communications working group and produce key messages (coordinated with appropriate ministries and the private sector) for public awareness. Also, there is a need to determine methods of communication to public and if any supplemental materials will be distributed.

Chapter 9 Surveillance measures for observation area

The early detection of the first LSD outbreaks is of curial importance. If the detection is delayed, response measures, including emergency vaccination, will be also delayed and, as an end result, the

epidemiological situation will worsen. Therefore, early detection should be one of the highest priorities along with planning emergency vaccination.

Also important is to define when surveillance for the disease should be initiated or intensified

Sharing real time information on LSD outbreaks with countries in the region is also crucial, so free countries neighboring infected ones can make informed decisions as to when to intensify surveillance activities and if and when to start with preventive vaccination measures.

Surveillance programmes are based on active and passive clinical surveillance and laboratory testing of blood and serum samples, nasal swabs or skin samples collected from suspected cases.

In surveillance areas, selective clinical examination of herds are carried out on a regular basis.

Surveillance for LSD has different purposes including:

- Before; Surveillance to detect the presence of disease along the border with an infected country or region, to ensure early detection and rapid response to disease
- During; Surveillance to detect cases of LSD when LSD is already present in the country, with the aim to implement control measures at the suspicious/infected premises
- During; Surveillance to detect the presence of disease around a vaccination area (surveillance zone) to prove the disease is not spreading from the vaccination area
- After; Surveillance to prove freedom after control measures and regain disease-free status as laid down in the OIE Terrestrial Animal Health Code, Chapter 11.9. (exit strategy)
- Evaluation of the effectiveness of the vaccination campaign

Chapter 10 Release of quarantine and further restrictions

Permanent control within surveillance zones should last until the lift of quarantine in epizootic area.

Before lifting the quarantine measures at a farm, decontamination of all premises and adjoining areas need to be carried out by farmers following instructions by the **Competent Veterinary Authority**. After mechanical removal of the loose surface materials, facilities are decontaminated using effective detergents and disinfectants

Quarantine are lifted after a permit has been obtained from the **Competent Veterinary Authority**.

Chapter 11 Conducting epidemiological surveys in affected holdings and regions

A comprehensive epidemiological survey should be carried out in affected regions. Pre-prepared questionnaires can be used for data collection.

Chapter 12 Evaluation and update of the contingency plan

The contingency plan has to be updated on a regular basis by the appointed person or unit within the Competent Veterinary Authority, in order to be always fit for the purpose.

After an LSD outbreak, a thorough evaluation of the efficacy of different control and eradication measures needs to be conducted by the head of the NDCC/CVO with the involvement of NDCC, RDCC, laboratory, expert groups, industry and other stakeholders.

Update and revision of the contingency plan should be based on the experiences gathered from the previous outbreaks and lessons learnt.

In peace time, various type of simulation exercises ranging from drills, desktop, functional to full scale with the involvement of all relevant stakeholders have to be performed. It is recommended to conduct exercises in a regular and planned manner with an increasing level of realism, with the final aim to conduct a full-scale simulation exercise within two years to test all the components of the contingency plan for updates and improvements

Suggested annexes

1. List of contacts (National level, Regional offices, expert group. National Laboratory, International laboratories, etc.)
2. Epidemiological questionnaire
3. List of available equipment
4. Vaccine bank/stocks
5. Official quarantine form
6. List of available disinfectants and disinfection technique
7. Size, structure and movements and trading patterns of relevant livestock populations
8. [FAO Lumpy skin disease field manual](#) (2017)

Appendices

- I. Template questions on risk assessment for LSD
- II. Guide on preparing emergency vaccination plan for LSD
- III. Guide to surveillance and early detection of lumpy skin disease
- IV. Prevention measures against LSD