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럼피스킨 방역제도개선 방안 연구

주관연구기관 : 법무법인 기세

법무법인 기세 LAW FIRM GISE

가축위생방역지원본부

제 출 문

가축위생방역지원본부 본부장 귀하

본 보고서를 “럼피스킨 방역제도개선 방안 연구”(연구기간 : 2024. 1. 19. ~ 2024. 3. 18.) 과제의 최종보고서로 제출합니다.

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럼피스킨 방역제도개선 방안 연구

요약문

용역과제명	럼피스킨 방역제도개선 방안 연구		
색인어	럼피스킨, 방역, 제도개선		
주관연구기관	법무법인 기세	**연구책임자**	변호사 김홍천
연구 기간	2024. 1. 19. ~ 2024. 3. 18.		

럼피스킨[1]의 해외 발생사례 및 발생하였던 국가들과 발생하지 아니한 국가들의 럼피스킨관련 대응 규정을 검토하여, 럼피스킨 방역을 위한 별도의 규정이 필요한지 검토하고, 국내 발병 이후 이에 대한 방역 과정에서 적용하였던 가축전염병 예방법 및 관련 규정들(해외악성가축전염병 방역실시요령, 구제역 방역실시요령)의 적용 과정에서의 문제점을 확인하여, 럼피스킨의 재발 방지 및 발생시 적법하고 효율적인 대응에 필요한 방역실시요령의 안을 제안하고자 함.

1) 가축전염병 예방법 제2조 제1호 가목에 '럼피스킨병'으로 기재되어 있으나 농림축산식품부는 2023. 11. 7.부터 럼피스킨병 명칭을 '럼피스킨'이라는 약칭으로 사용하기로 하였으므로 본 연구에도 약칭을 사용합니다.

1. 럼피스킨 개요

가. 세계동물보건기구(WOAH) 럼피스킨 소개

럼피스킨에 대한 세계동물보건기구에 기재된 사항은 아래와 같습니다.

Lumpy Skin Disease

Lumpy skin disease virus (LSDV) belongs to the family Poxviridae, subfamily Chordopoxviridae, and genus Capripoxvirus. LSD is a disease of cattle characterised by fever, nodules on the skin, mucous membranes and internal organs, emaciation, enlarged lymph nodes, oedema of the skin, and sometimes death. The disease is of economic importance as it can cause a temporary reduction in milk production, temporary or permanent sterility in bulls, damage to hides and, occasionally, death. Bos taurus is generally more susceptible to clinical disease than Bos indicus; the Asian buffalo(Bubalus spp.) has also been reported to be susceptible. In the acutely infected animal, there is an initial pyrexia, which may exceed 41˚C and persist for 1 week. All the superficial lymph nodes become enlarged. In lactating cattle there is a marked reduction in milk yield. Lesions develop over the body, particularly on the head, neck, udder, scrotum, vulva and perineum between 7 and 19 days after virus inoculation. The characteristic integumentary lesions are multiple, well circumscribed to coalescing, 0.5-5cm in diameter, firm, flat-topped papules and nodules. The nodules involve the dermis and epidermis, and may extend to the underlying subcutis and occasionally to the adjacent striated muscle. These nodules have a

creamy grey to white colour on cut section, which may initially exude serum, but over the ensuing 2 weeks a cone-shaped central core or sequestrum of necrotic material/necrotic plug(“sit-fast”) may appear within the nodule. Various strains of capripoxvirus are responsible for the disease. These are antigenically indistinguishable from strains causing sheep pox and goat pox yet distinct at the genetic level. Transmission of LSD virus (LSDV) is thought to be predominantly by arthropods, natural contact transmission in the absence of vectors being inefficient. Attenuated cattle strains, and strains derived from sheep and goats have been used as live vaccines against LSDV. LSDV is not transmissible to humans.
럼피스킨 바이러스(LSDV)는 Poxviridae 과, Chordopoxviridae 아과, Capripoxvirus 속에 속한다. LSD는 발열, 피부, 점막 및 내장의 결절, 수척, 림프절 비대, 피부 부종, 그리고 일부 사망을 특징으로 하는 소의 질병이다. 이 질병은 우유 생산량의 일시적 감소, 황소의 일시적 또는 영구적 불임, 가죽 손상 및 때로 사망을 유발할 수 있으므로 경제적으로 중요하다. 유럽가축우(Bos taurus)는 일반적으로 인도가축우(Bos indicus)보다 임상 질환에 더 민감하다. 아시아버팔로(Bubalus spp.)도 감염되기 쉬운 것으로 보고되었다. 급성으로 감염된 동물에서는 초기 발열이 나타나며 발열은 41˚C를 초과하고 1주일 동안 지속될 수 있다. 모든 표피 림프절이 확대된다. 유우에서는 우유 생산량이 현저하게 감소한다. 바이러스 접종 후 7~19일 사이에 몸 전체, 특히 머리, 목, 유방, 음낭, 외음부, 회음부에 병변이 발생한다. 특징적인 외피 병변은 다발성이고, 잘 유착되어 있으며 직경이 0.5~5cm이고 단단하고 윗부분이 편평한 구진과 결절이다. 결절은 진피와 표피에 영향을 미치며 밑에 있는 피하조직까지 확장될 수 있으며 때로는 인

접한 가로무늬근까지 확장될 수 있다. 이 결절은 절단 부위에 크림 같은 회색에서 흰색을 띠며 처음에는 혈청이 삼출 되지만 이후 2주에 걸쳐 원뿔 모양의 중심핵 또는 괴사 물질이나 괴사 마개("고정")의 부산물이 결절 내에 나타날 수 있다. 다양한 종류의 Capripoxvirus가 이 질병의 원인이다. 이들은 양두 및 염소두창을 유발하는 계통과 항원으로 구별할 수 없지만, 유전적 수준에서는 구별된다. LSD 바이러스(LSDV)의 전파는 주로 절지동물에 의해 이루어지는 것으로 생각되며, 벡터가 없는 경우 자연적인 접촉 전파는 비효율적이다. 약독화된 소 계통, 양 및 염소 유래 계통이 LSDV에 대한 생백신으로 사용되어왔다. LSDV는 인간에게 전염되지 않는다.

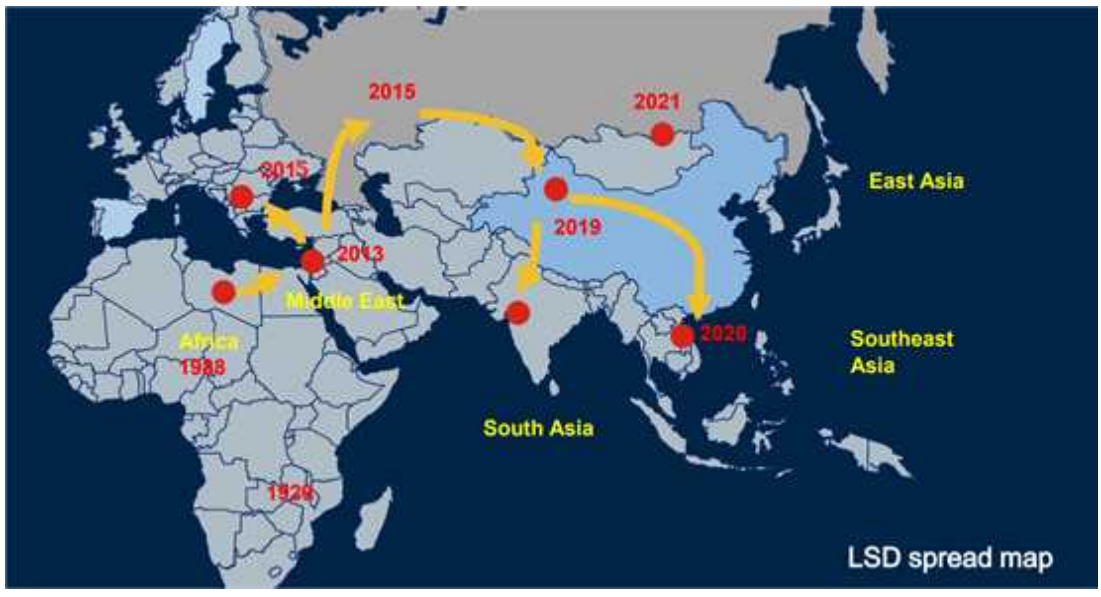
나. 기존 유행 가축전염병과의 차이점

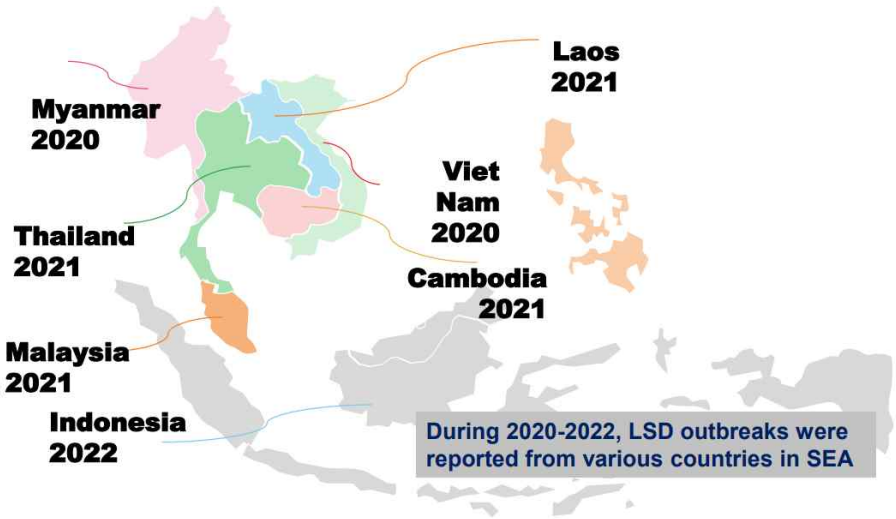
기존 국내에서 유행한 가축전염병(구제역, 조류인플루엔자, 아프리카돼지열병 등)은 주로 감염된 개체가 배출하는 분비물들에 포함되어있는 바이러스를 다른 개체가 접촉하여 감염이 이루어지게 되었으나, 럼피스킨의 경우 흡혈성 매개체(침파리, 모기, 진드기 등 흡혈성 절지동물)에 의해 바이러스가 전파되어 발병되는 것이 주된 감염 경로로 확인되어, 기존 방역 정책인 감염된 개체가 다른 개체들과 접촉이 이루어지지 아니하도록 하는 차단방역과 함께 흡혈성 매개체에 대한 구제가 중요할 것으로 보입니다.

다. 해외 발생사례

아프리카지역 풍토병으로 여겨지던 럼피스킨은 1989년 이스라엘에서 발생

하였고, 2012년 중동지역에서 발생하였으며, 2013년 튀르키예에서 발생하였고, 2015년 발칸반도 유럽(그리스, 불가리아, 루마니아 등)에서 발생하였습니다. 그리고 유라시아지역으로 전파되어 러시아, 인도, 방글라데시, 카자흐스탄, 중국 신장지구에서 2019년 발생이 보고되었고, 2020년에는 중국 남동부지역 및 대만, 러시아 극동지역, 네팔, 베트남, 미얀마, 홍콩, 대만, 스리랑카, 태국 등지에서 발생하여 서남아시아에서 동아시아로 확산하였으며, 2023년 국내에서도 발생하였습니다.





Fourth LSD coordination meeting For South-East Asia 28-29 November, 2023 Thailand
Update on Global and Regional lumpy skin disease situation

라. 전파 매개체

럼피스킨의 전파 요인은 주로 흡혈성 절지동물이며, 모기류(Culex mirificens, Aedes natrionus), 흡혈파리(Stomoxys calcitrans, Biomyia fasciata), 진드기(Riphicephalus appendiculatus, Amblyomma hebraeum) 등이 감수성동물(소)을 물어 바이러스를 전달하는 경로에 의한 전파입니다. 그리고 감염된 개체에 의해 오염된 사료나 물, 오염된 주사기의 재사용에 의한 전파도 가능하며, 접촉에 의한 전파도 가능하나 다수는 아닐 것으로 여겨지고 있습니다.

2. 해외 방역 규정

가. 국제연합식량농업기구(FAO)

세계식량농업기구가 발행한 LUMPY SKIN DISEASE A field manual for veterinarians 중 Control and prevention of lumpy skin disease 부분을 살펴보면 럼피스킨에 대응하는 방안으로 예방접종, 이동제한, 살처분과 사체처리, 사람과 농장 및 환경에 대한 세척 및 소독, 동물과 환경에서 곤충 통제, 생물학적 보안 규정 마련, 관계자 교육, 예찰활동 프로그램 등을 언급하고 있습니다.

Control and prevention of lumpy skin disease
• The best protection comes from prophylactic vaccination of the

entire cattle population, carried out well in advance in at-risk areas.

• Movements of cattle inside the country and across borders should be strictly controlled or totally banned. Authorized cattle movements should be accompanied by a veterinary certificate including all data concerning the animals' origins, and animal health guarantees.

• In affected villages, cattle herds should be kept separate from other herds by avoiding communal grazing, if possible without animal welfare issues. However, in some cases the whole village forms a single epidemiological unit and then the feasibility of separation has to be evaluated on a case-by-case basis.

• Movements of vaccinated animals can be allowed within a restricted zone within a country after it has been established that full immunity has been provided by a vaccine with proven efficacy (28 days after vaccination).

• Cattle should be treated regularly with insect repellents to minimize the risk of vector transmission of the disease. This measure cannot fully prevent transmission but may reduce the risk.

럼피스킨 통제와 예방

최선의 보호는 위험지역에서 사전에 잘 수행되는 전체 소 개체군에 대한 예방접종이다.

국내 및 국경을 넘는 소의 이동은 엄격하게 통제되거나 전면 금지되어야 한다. 소의 이동승인은 동물의 기원에 관한 모든 데이터와 동물 건강 보장을 포함한 수의학 증명서가 있어야 한다.

영향을 받은 마을에서는 동물 복지 문제없이 가능하면 공동 방목을 피하여

소 떼를 다른 소 떼와 분리해야 한다. 그러나 마을 전체가 하나의 역학적 단위를 형성한 경우는 사례별로 분리 가능성을 평가해야 한다.

백신접종 동물의 이동은 효능이 입증된 백신에 의해 완전한 면역이 제공된 것이 확인된 후(접종 후 28일) 국가 내 제한 구역 내에서 허용할 수 있다.

소는 매개체 전염의 위험을 최소화하기 위해 정기적으로 방충제를 사용하여 치료해야 한다. 이 조치는 전염을 완전히 막을 수는 없으나 위험을 줄일 수는 있다.

나. 세계동물보건기구(WOAH)

세계동물보건기구의 Lumpy Skin Disease Technical Disease Card에서 '예방과 통제' 기재사항을 살펴보면 아래와 같습니다. 세계동물보건기구는 럼피스킨의 효과적인 통제 및 종식 방안으로 감염동물을 초기에 발견하여 그에 대한 대응으로 빠르고 광범위한 백신접종을 실시하는 것을 권장하고 있습니다. 미감염 국가나 지역의 경우 감염지역으로부터 최소 20km 이내에서 감시활동을 할 것을 권고하며, 감염 국가나 지역은 감염동물 및 임상 증상이 없는 감염동물 무리에 해당하는 동물들에 대한 전체적인 살처분 또는 감염동물에 대한 살처분과 백신접종을 통하여 대응할 것을 권고하고 있습니다.

PREVENTION AND CONTROL

Evidence from the recent LSD epidemic in Europe and western Asia has revealed that successful control and eradication of LSD relies on early detection of the index case, followed by a rapid and widespread vaccination campaign. It is unlikely that total stamping-out (killing all clinically affected cattle and unaffected herd-mates) and partial stamping-out (killing only clinically

affected cattle) alone, in the absence of vaccination, can eradicate LSD.

In unaffected countries or zones, it is also important to prepare any preventive vaccination or emergency vaccination plans.

Sanitary prophylaxis

• Free countries:

o Import restrictions on domestic cattle and water buffaloes, and selected products from these animals in accordance with the recommendations in the chapter on LSD in the WOAH Terrestrial Animal Health Code.

o Surveillance measures to detect LSD are recommended over a distance of at least 20 kilometres from an infected country or zone, in reference to recommendations in the chapter on LSD in the WOAH Terrestrial Animal Health Code.

• Infected countries:

o Control of LSD depends on restriction of movement of cattle in infected regions, removal of clinically affected animals, and vaccination. Movement restrictions and removal of affected animals alone without vaccination are usually not effective.

o Proper disposal of dead animals (e.g. incineration), and cleaning and disinfection of premises and implements are recommended for LSD.

o There is currently no evidence of the efficacy of vector control in preventing disease

o See WOAH Terrestrial Animal Health Code for recommendations on the recovery of LSD-free status of a country or zone, including recommendations on surveillance and waiting periods.

Medical prophylaxis

• LSDV live attenuated vaccine strain, for example 'Neethling' LSD strain.

• Sheeppox or goatpox virus live attenuated vaccine strain against LSDV if used at a higher dose than for prevention of sheeppox or goatpox.

• Vaccine side-effects such as a local reaction at the inoculation site or small generalised skin nodules, as well as fever and reduction in milk yield, may follow vaccination with homologous vaccine, more rarely after vaccination with sheeppox vaccine.

• Currently, no new generation recombinant capripox vaccines are commercially available.

예방과 통제

최근 유럽과 서아시아에서 발생한 럼피스킨의 예시에서 럼피스킨의 성공적인 통제와 조기종식을 위해서는 감염사례의 초기 발견과 빠르고 광범위한 백신 실시를 해야 함이 밝혀졌다.

감염이 없는 국가나 지역에서도 예방백신과 긴급백신계획을 준비하는 것이 중요하다.

공중위생 예방

• 청정 국가:

o 육상동물위생규약에 따라 소와 물소 및 이들의 부산물의 수입 제한

o 육상동물위생규약에 따라 감염된 국가나 지역으로부터 최소 20km 이내에 대한 럼피스킨 조사 권장

• 감염 국가:

o 럼피스킨의 통제는 감염지역 소의 이동 제한, 임상적으로 감염동물 살처분, 백신접종에 달려있다. 백신접종 없이 이동제한과 감염동물 살처분만으로는 일반적으로 효과가 없다.

o 죽은 동물 소각의 방법으로 적절한 처리와 시설 및 기구의 청소와 소독 권장

o 현재까지 질병 예방에서 매개체 통제의 효과에 관한 증거는 없음

o 감시 및 대기기간의 권장을 포함한 럼피스킨이 없는 지역 또는 국가로의 회복은 육상동물위생규약을 참조

의료적 예방

• 럼피스킨바이러스 약독화 백신주(Neethling주)

• 양두바이러스나 산양두창바이러스의 약독화 백신을 양두, 산양의 예방용량보다 더 높게 사용하는 경우 럼피스킨바이러스에 대응

• 접종 부위의 국소반응 또는 소규모 전신 피부 결절과 발열, 우유 생산감소는 상동백신 접종 후 나타날 수 있으며, 양두백신 접종 후에 더 드물게 나타남

• 현재 상용화된 새로운 세대의 capripox백신은 없음

다. 튀르키예

튀르키예에서 발생한 럼피스킨의 방역에 적용한 유럽연합의 COUNCIL DIRECTIVE 92/119/EEC of 17 December 1992 introducing general Community measures for the control of certain animal diseases and

specific measures relating to swine vesicular disease 규정을 살펴보면 다음과 같이 살처분정책과 매개체에 관하여 규정되어 있습니다.

Article 2 3. vector: any wild vertebrate or invertebrate animal which, by mechanical or biological means, is liable to transmit and spread the agent of the disease in question; 벡터: 기계적 또는 생물학적 수단으로 해당 질병의 병원체를 전파 및 확산시키기 쉬운 야생 척추동물 또는 무척추동물
Article 4 2. (b) all animals of susceptible species on the holding be kept in their living quarters or confined in some other place where they can be isolated taking into account the possible role of vectors, where appropriate; 모든 감염될 수 있는 동물은 매개체의 역할을 고려하여 적절한 격리할 수 있는 거주 구역에 가두거나 다른 장소에 가두어 두어야 한다.
Article 5 1. Once it has been officially confirmed that one of the diseases listed in Annex I is present on a holding, Member States shall ensure that, in addition to the measures laid down in Article 4 (2), the competent authority requires application of the following measures: 부속서 I 에 나열된 질병의 발생이 공식적으로 확인되면 회원국은 제4조 제2항에 규정된 조치 외에 관할 당국이 다음 조치를 적용하도록 하여야 한다.

(a) all animals of susceptible species on the holding shall be killed on the spot, without delay. The animals which have died or been killed shall either be burnt or buried on the spot, if possible, or destroyed in a carcase disposal plant. These operations shall be carried out in such a way as to minimize the risk of disseminating the agent of the disease
사육장 내에 있는 감염되는 동물은 모두 그 자리에서 지체없이 살처분되어야 함. 죽은 동물과 살처분된 동물은 가능하면 그 자리에서 소각되거나 매몰되어야 하며, 아니라면 사체 처리장에서 폐기되어야 합니다. 이 작업은 병원체가 전파되는 것을 최소화하는 방식으로 수행되어야 한다.

(b) any substance or waste, such as animal feed, litter, manure or slurry, which is liable to be contaminated, shall be destroyed or treated appropriately. This treatment, carried out in accordance with the instructions of the official veterinarian, must ensure that any agent or vector of the agent of the disease is destroyed;
오염되기 쉬운 동물 사료, 쓰레기, 분뇨 또는 슬러리와 같은 물질 또는 폐기물은 파괴되거나 적절하게 처리되어야 한다. 수의사의 지시에 따라 수행되는 이 처리는 질병의 병원체 또는 매개체가 파괴되도록 해야 한다.

Article 8

1. The epizootiological enquiry shall deal with:
(d) the presence and distribution of disease vectors as appropriate.
역학조사는 다음을 다루어야 한다.
적절한 질병 매개체의 존재와 분포

Article 10

3. At the duly substantiated request of a Member State or on the Commission's initiative, it may be decided under the procedure

laid down in Article 26, to modify (in particular to reduce or increase, as appropriate) the boundaries of the zones laid down in paragraph 1 or the duration of the restriction measures, taking into account: - the presence, distribution and type of vectors, 회원국의 요청이나 위원회의 발의로 제26조의 규정에 따라서 제1항의 경계와 기간을 결정(적절히 줄이거나 늘이기 위하여)할 수 있다. 매개체의 존재와 분포, 유형
Article 11 2. The measures applied in the protection zone shall be kept in force for at least the maximum incubation period pertaining to the disease in question after animals from the infected holding have been disposed of in accordance with Article 5 and cleaning and disinfection operations have been carried out in accordance with Article 16. However, where the disease is transmitted by an insect vector, the competent authority may fix the duration of the measures and lay down provisions for the possible introduction of sentinel animals. 보호 구역에 적용되는 조치는 제5조에 따라 감염된 사육장에서 나온 동물을 처리하고, 제16조에 따라 청소 및 소독 작업을 수행한 후 적어도 문제의 질병과 관련된 최대 잠복기 동안 유효해야 한다. 그러나 질병이 매개곤충에 의해 전파되는 경우 관할 당국은 조치 기간을 정하고 동물의 도입 가능성에 관한 규정을 정할 수 있다.

GF-TADs Standing Group of Experts on Lumpy Skin Disease in

South East Europe에서 2019. 10. 발표된 내용에 따르면 튀르키예에서 발생한 럼피스킨의 방역 조치로 Detection of vectorborn diseases and creation of early warning system in Turkey, Enhancing national capabilities for early and rapid detection of priority vector borne diseases of animals (including zoonoses) by means of molecular diagnostic tools (IAEA Project), Control and prevention of Lumpy Skin Disease(EU funded IPA Project) 등의 프로그램이 운영되었으며, Control and prevention of Lumpy Skin Disease IPA Project 내에 To supply light traps to investigate the vector activity in the country가 포함되어있어, 튀르키예의 럼피스킨 방역에서 흡혈성 매개체에 대한 구제가 중요한 부분 조치로 규정하고 있음이 확인됩니다.

라. 그리스

그리스는 튀르키예와 같이 COUNCIL DIRECTIVE 92/119/EEC 규정을 적용하여 방역지역을 설정하고 예찰 활동을 강화하였으며, 살처분 정책을 실시하고, 백신 정책을 실시하는 한편 COUNCIL DIRECTIVE 92/119/EEC 규정보다 더 넓은 예찰 지역[2]을 설정하여 흡혈성 매개체에 대한 통제와 감시를 하였습니다(첨부서류 6. GF-TADs SGE LSD5 October 2017 참조).

마. 중국, 대만

중국은 러시아로부터 유입된 것으로 추정하는데, 발생지에서 반경 3km 범

2) COUNCIL DIRECTIVE 92/119/EEC 규정의 경우 surveillance zone을 발생지 반경 10km 이상으로 규정(Article 10)하나, 그리스는 발생지 반경 25km로 설정

위로 전염병 지역을 설정하고 그로부터 10km 내를 위험지역으로 설정하여 전염병 지역 내에 감염된 개체를 도태하고 이동제한 조치를 하면서 방역지역 내 개체들이 흡혈 곤충에 물리지 않도록 조치를 하여야 함을 규정하여 흡혈성 매개체 등에 대한 '해충구제조치'를 실시하도록 규정하였습니다.

牛结节性皮肤病防治技术规范

4.疫情处置

4.1临床可疑和疑似疫情处置

对发病场（户）的动物实施严格的隔离、监视，禁止牛只及其产品、饲料及有关物品移动，做好蚊、蝇、蠓、虻、蜱等虫媒的灭杀工作，并对隔离场所内外环境进行严格消毒。必要时采取封锁、扑杀等措施。

4. 전염병 처리

4.1 임상적으로 의심되는 전염병의 처리

발병지(가구)의 동물을 엄격히 격리·감시하고, 소와 그 제품, 사료 및 관련 물품의 이동을 금지하며, 모기, 파리, 갯지렁이, 등에, 진드기 등 곤충 매개체를 사멸하고, 격리장 내외부 환경을 철저히 소독한다. 필요한 경우 봉쇄, 도태 등의 조치를 취한다.

4.2.1.2疫区：疫点边缘向外延伸3公里的区域。对运输过程发生的疫情，经流行病学调查和评估无扩散风险，可以不划定疫区。

4.2.1.3受威胁区：由疫区边缘向外延伸10公里的区域。对运输过程发生的疫情，经流行病学调查和评估无扩散风险，可以不划定受威胁区。

4.2.1.2 전염병 지역: 전염병 지점 가장자리에서 바깥쪽으로 3km에 달하는 지역. 운송 중에 발생하는 전염병의 경우, 역학조사 및 평가를 거쳐 확산위

험이 없는 경우에는 유행지역을 지정하지 않아도 된다.
4.2.1.3 위험 지역: 전염병 지역 가장자리에서 바깥쪽으로 10km에 이르는 지역. 운송 중에 발생하는 전염병의 경우 역학조사 및 평가를 거쳐 확산위험이 없으면 위험지역을 지정하지 않아도 된다.

4.2.3对疫点应采取的措施
4.2.3.1扑杀并销毁疫点内的所有发病和病原学阳性牛，并对所有病死牛、被扑杀牛及其产品进行无害化处理。同群病原学阴性牛应隔离饲养， 采取措施防范吸血虫媒叮咬，并鼓励提前出栏屠宰。
4.2.3.2实施吸血虫媒控制措施，灭杀饲养场所吸血昆虫及幼虫，清除滋生环境。

4.2.3 전염병 발생 지역에 대한 조치
4.2.3.1 전염병 지역의 모든 질병 및 병인 양성인 소를 도태 및 파괴하고 모든 병든 소, 도태된 소 및 그 제품을 무해하게 처리. 같은 무리의 병원성 음성 소는 격리하여 사육하고 흡혈 곤충 매개체에 물리지 않도록 조치를 취하고 도축을 위해 조기 도축을 권장.
4.2.3.2 사육장에서 흡혈 곤충과 유충을 죽이고 번식 환경을 제거하기 위해 흡혈 곤충 매개체 방제 조치를 시행.

4.2.4对疫区应采取的措施
4.2.4.2实施吸血虫媒控制措施，灭杀饲养场所吸血昆虫及幼虫，清除滋生环境。
4.2.4.3对牛只养殖场、牧场、交易市场、屠宰场进行监测排查和感染风险评估，及时掌握疫情动态。对监测发现的病原学阳性牛只进行扑杀和无害化处理，同群牛只隔离观察。

4.2.4 전염병 지역에서 취해야 할 조치
4.2.4.2 사육장에서 흡혈 곤충과 유충을 죽이고 번식 환경을 제거하기 위해 흡혈 곤충 매개체 방제 조치를 시행.
4.2.4.3 가축 농장, 목초지, 거래 시장 및 도축장에 대한 모니터링 및 검사 및 감염 위험 평가를 수행하고 전염병 상황을 적시에 파악. 모니터링에서 발견된 병원성 양성 소는 도태 및 무해하게 처리하며 동일한 그룹의 소는 개별적으로 관찰.

4.2.5对受威胁区应采取的措施
4.2.5.2实施吸血虫媒控制措施，灭杀饲养场所吸血昆虫及幼虫，清除滋生环境。

4.2.5 위협지역에서 취해야 할 조치
4.2.5.2 흡혈곤충 매개체 방제조치를 실시하고, 번식지의 흡혈곤충과 유충을 사멸하며, 사육환경을 정리한다.

대만의 경우 중국으로부터 유입된 것으로 추정하고 있으며, '방역강화 조치'와 '흡혈 곤충 소독지침'을 배포하여 방역지역 내에서 흡혈성 매개체에 대한 구제를 실시하고 있습니다.

바. 영국

럼피스키병이 발생하지 아니한 영국에서는 Lumpy Skin Disease Control Strategy for Great Britain(June 2018)으로 방역지침[3]을 규정하였습니다. 해당 방역지침을 살펴보면 럼피스킨의 발병이 확인되면 감염되는 동물과 그

3) 당해 규정은 영국 국내법과 유럽법의 범위 내에서 정부의 정책을 규정하고 있으므로 행정규칙으로 볼 수 있습니다.

집단을 유럽연합의 규정에 따라 인도적으로 살처분하도록 규정되어 있으며 보호종이나 살처분 정책이 효과적이지 아니하다고 판단할 경우 유럽연합에 유럽연합과는 다른 정책실시를 허락할 것을 요구하도록 규정되어 있으며, Annex B: Control measures by zone 규정을 살펴보면 감염구역(Infected Premises)에서 매개체의 종류에 따라 가능하다면 구역과 동물들에 대해 매개체 구제를 하도록 규정하였습니다.

Culling

41. If LSD is confirmed, all susceptible animals on the infected premises will be humanely culled in accordance with EU and domestic law. There are certain animals on the UK breeds at risk list which may be spared from culling. This will be subject to a veterinary risk assessment and the European Commission will be informed if this approach is to be taken. If there are multiple infected premises and culling is considered to be less effective, government may approach the EU to request a deviation from the EU requirement to cull whole herds.

살처분

럼피스킨이 확인되면 모든 감염될 수 있는 동물은 유럽연합과 국내법에 따라 인도적으로 살처분한다. 영국에서 살처분을 면제할 수 있는 위험 목록의 종이 있다. 이는 수의학적 위험 평가 대상이며 이러한 방식이 이루어지면 유럽연합 집행위원회에 알려진다. 감염지역이 여러 곳이고 살처분이 덜 효과적이라 판단되면 정부는 유럽연합의 무리에 대한 살처분 요구에서 벗어나도록 유럽연합에 요청한다.

Annex B: Control measures by zone

Control measure	Infected Premises (IP)	Protection Zone (PZ)	Surveillance Zone (SZ)	Vaccination Zones (IVZ and

				FVZ)
Vector control in premises and on animals if possible (dependent on type of vector, if known)	Yes Thorough C&D with approved disinfectants	No	No	No

사. 호주

호주는 럼피스킨이 발병하지 아니하였고, AUSVETPLAN Response strategy Lumpy skin disease Version 5.0 규정으로 럼피스킨에 관한 대응 규정을 두고 있습니다. 위 규정 중 럼피스킨 발병 시 대응 정책 및 매개체 관련 규정을 살펴보면 아래와 같습니다.

4.2 Control and eradication policy

LSD is primarily a mechanically transmitted vector-borne disease. Without sufficient susceptible hosts or sufficient infectious vectors, the transmission cycle in a region will slow and halt. Interrupting transmission cycles to stop progression should therefore focus on:

• animal movement controls, including the creation of cattle- and buffalo-free buffers

• stamping-out activities

• widespread regional vaccination

• vector control

럼피스킨은 주로 기계적으로 매개체에 의해 전파되는 질병이다. 감염 가능한 숙주나 감염된 매개체가 충분하지 않다면 지역 내 감염주기가 느려지고 중단된다. 감염주기의 진행을 중단하기 위해 아래에 집중하여야 한다:

• 동물 이동제한, 소와 물소가 없는 완충 지역 형성

• 살처분 활동

• 광범위 지역 백신

• 매개체 통제

Stamping-out activities should prioritise clinically affected animals with nodules (ie modified stamping out), because these are the animals most at risk of providing virus for biting vectors to spread the virus within a region. Stamping out of all animals in an infected herd should be attempted if sufficient resources are available to ensure that this action will not impede vaccination activities.

살처분 정책은 임상적으로 결절이 있는 동물(완화된 살처분 정책)이 지역 내에 무는 매개체들이 전파하는 바이러스 제공의 가장 큰 위협이므로 우선순위를 정해야 한다. 감염된 집단의 모든 동물을 살처분하는 것은 백신 접종을 방해하지 않는 충분한 자원이 가능할 때 시도하여야 한다.

4.2.15 Vector management

With input from an entomologist, a vector monitoring program will be implemented to identify the vectors of concern. A targeted approach to vector control to break the transmission cycle will

then be devised. Recent literature has found that Stomoxys calcitrans, Culicoides nubeculosis and Aedes aegypti are potentially efficient transmitters of LSD virus (Sanz-Bernardo et al 2021).

Since several vector species are present in Australia, a range of approaches may be required to manage the risks. These may include aerial and ground application of insecticides as ultra-low volume (ULV) fogs, and treatment of cattle with either a systemic insecticide (eg ivermectin), an insecticidal or insect-repellent ear tag, or a topical (eg pour-on) insecticide, ideally to both repel insects and reduce the population of target insects. The treatment radius would be determined by risk assessment. Topical insecticides that repel insects and prevent or reduce biting are preferred, to reduce the likelihood of a naive herd becoming infected. The use and application of each of these options would vary in different areas of Australia and during different seasons, and will need to take into account safety, efficacy, environmental and food safety issues.

Where practicable, insect-proof housing for animals might also be considered. Cattle and buffalo producers should be encouraged to avoid placing animals in paddocks with high levels of insect activity (eg swampy areas).

The area over which vector management is undertaken should be determined taking into consideration the local vector species, vector dispersal, vector breeding sites, and the possibility of

windborne spread of vectors.

If infected source animals can be destroyed and disposed of quickly, the risk of transmission to new vector populations will be reduced. Ticks as vectors will require consideration with regard to ongoing transmission risk.

Expertise in areas such as virology (including arbovirology), vector epidemiology and mapping will be sought to assist with any outbreak, and help provide surveillance data and other advice for use in reopening international trade.

곤충학자의 의견을 바탕으로 우려되는 매개체를 식별하기 위해 매개체 모니터링 프로그램이 적용된다.

공중과 지상에 안개 형태의 살충제 살포, 소에게 전신성 살충제(이버멕틴) 투여, 살충제나 곤충기피제를 귀표로 부착하거나 도포 하는 방법으로 이상적으로 곤충을 퇴치하고 대상 곤충의 개체수를 줄이는 방법을 포함한다. 감염되지 않은 집단이 감염될 가능성을 줄이기 위해 곤충을 퇴치하고 물림을 방지하거나 줄이는 국소 살충제가 선호된다. 이러한 각 방법을 적용하기 위해서 지역, 계절, 안전성, 효능 환경 및 식품안전 등을 고려하여야 한다.

가능하다면 방충시설이 설치된 사육시설도 고려할 수 있다. 소와 물소 사육자는 곤충의 활동이 활발한 방목장(예시 늪지대)에 동물을 두지 않도록 하여야 한다.

매개체 관리 대상 지역은 지역 매개체 종, 매개체 분포, 매개체 번식지, 바람에 의한 매개체 확산 가능성 등을 고려하여 결정되어야 한다.

감염된 동물이 신속히 처리되면 새로운 매개체 개체군으로의 전파 위험이 줄어든다. 매개체로서 진드기는 지속적인 전파 위험을 고려하여야 한다.

바이러스학(절지동물에 의해 전파된 바이러스 연구), 매개체 역학 및 분포 지도 등의 전문지식은 발병원인 규명과 국제 무역 재개에 사용할 감시정보 제공에 도움이 된다.

6.4.10 Nonsusceptible animals

Nonsusceptible animals may play a role in spread of infection by acting as fomites.

Movement of nonsusceptible animals from IPs, DCPs, TPs and SPs will be based on risk assessment and subject to appropriate conditions to mitigate the identified risks (eg cleaning to remove mud, limiting access to cattle and buffalo at the destination). The risk assessment and conditions applied should also consider the potential for vector movement associated with the proposed animal movement; for example, some species of ticks may be present on both horses and cattle.

Movement of nonsusceptible animals from ARPs and PORs will also be based on risk assessment, taking into consideration the factors outlined above.

Movement of nonsusceptible animals from the OA is allowed without restriction (although permit requirements and conditions may apply to the movement of vehicles out of declared areas – see Section 6.4.9)

비감수성 동물은 매개체 역할을 함으로써 감염 확산에 역할을 할 수 있다.

IPs(infected premises), DCPs(dangerous contact premises), TPs(trace premises) 및 SP(suspect premises)에서 비감수성 동물의 이동은 위험 평가와 확인된 위험을 완화하기 위한 적절한 조건(예시: 진흙 제거 청소, 목적지의 소 및 물소 출입 제한)을 근거로 해야 한다. 위험성 평가 및 조건들은 동물과 관련된 벡터 이동의 가능성(예를 들어, 일부 진드기 종은 말과 소 모두에게 존재할 수 있음)도 고려해야 한다.

ARPs(At-risk premises) 및 PORs(Premises of relevance)에서 비감수성 동물의 이동도 위험 평가와 위에 정리된 요소들을 고려하여야 한다.

OA(Outside area)에서 비감수성 동물의 이동은 제한 없이 허용(하지만 설정된 지역 밖으로 차량을 이동하는 경우 허가 요건 및 조건이 적용될 수 있다.)

호주에서 운영 중인 럼피스킨 방역규정을 살펴보면 다른 국가의 방역규정과 같이 살처분 정책을 비롯한 질병의 예찰, 차단 방역, 이동 제한, 백신 프로그램 등과 함께 흡혈성 매개체에 대한 사전 사후 관리에 관한 규정을 두고 있고(4.2.15 Vector management), 흡혈성 매개체의 이동을 염려하여 비감수성 동물에 대한 이동 제한 규정(6.4.10 Nonsusceptible animals)도 마련하고 있음을 확인할 수 있습니다.

아. 미국

미국 농무부 럼피스킨 방역지침(USDA Lumpy skin disease standard operating procedures) 1.8 disease control 부분을 확인하여 보면 아래와

같고 insect control에 관하여 기재되어 있어 흡혈성 매개체에 대한 구제가 필요함을 규정하고 있습니다.

1.8 Disease Control
LSD is a reportable disease in the United States. Since fomites, animals, and animal products can spread disease, quarantines, movement control, insect control (insecticides/repellants), and stamping-out methods followed by cleaning and disinfection are critical in controlling the spread of LSD. Vaccination is another method of control. Antibiotics may be important for treatment of secondary infections. In 1989, Egypt and Israel used both vaccination and depopulation to control LSD outbreaks. The European Food Safety Authority also view vaccination as a highly effective disease control mechanism. 매개체, 동물, 동물 생산품은 질병을 퍼뜨릴 수 있으므로 검역, 이동통제, 곤충 통제(살충제/퇴치제) 및 살처분 후 세척 및 소독이 LSD 확산 통제에 중요하다.

자. 유럽연합 럼피스킨 백신접종 관련 현황

아래 규정을 확인하여 보면 2023년에 유럽연합 국가 중 불가리아와 그리스는 럼피스킨이 발병하지 아니한 상황에서 백신접종을 실시하는 지역으로 설정되어 있음을 확인할 수 있습니다.

COMMISSION IMPLEMENTING DECISION (EU) 2023/1521 of 19 July 2023 concerning certain special disease control measures for a limited period of time relating to infection with lumpy skin disease virus

in certain Member States

VACCINATION ZONES I and II

Vaccination zone I

1. Bulgaria:

The entire territory of Bulgaria

2. Greece:

The entire territory of Greece

Vaccination zone II

None

차. 일본

일본은 럼피스킨이 발병하지 아니하였고 일본 가축전염병예방법에서 정하는 가축전염병에 해당하지 아니하여 현행 규정으로는 살처분 정책을 시행하고 있지 아니합니다. 다만 '럼피스킨방역대책요령'에서 매개체에 대한 구제를 평시에도 규정하고 있으며 발병 시 20km 범위에서 백신접종 정책을 실시하도록 규정하고 있음을 확인할 수 있습니다.

家畜伝染病予防法

第四条 家畜が家畜伝染病以外の伝染性疾病(農林水産省令で定めるものに限る。以下「届出伝染病」という。)にかかり、又はかかつている疑いがあることを発見したときは、当該家畜を診断し、又はその死体を検案した獣医師は、農林水産省令で定める手続に従い、遅滞なく、当該家畜又はその死体の所在地を管轄する都道府県知事にその旨を届け出なければならない。

제4조 가축이 가축전염병 이외의 전염성 질병(농림수산성령으로 정하는 것에 한정한다. 이하 「신고전염병」이라고 한다.)에 걸려, 또는 과거의 의심이 있는 것을 발견했을 때는, 당해 가축을 진단하거나 그 사체를 검안한 수의

사는 농림수산성령으로 정하는 절차에 따라 지체없이 당해 가축 또는 그 사체의 소재지를 관할하는 도도부현 지사에게 그 취지를 신고하여야 한다.

ランピースキン病防疫対策要領

作成：令和６年１月 23 日付け５消安第 6169

号農林水産消費・安全局長通知

２ 発生の予防

（１）水際対策

我が国における本病の発生は、これまで確認されていないことから、本病発生国からの本病ウイルスの侵入を防ぐことが重要である。

現在、本病発生国からの生きた牛及び水牛並びにこれらの精液の輸入は禁止されていることから、これらを介した本病ウイルスが我が国に侵入するリスクは低い。一方、近隣諸国で本病が発生した後、ベクターが我が国に侵入し、当該ベクターが牛又は水牛に接触した場合、本病の感染の原因となる可能性は否定できないことから、水際におけるベクターの駆除等の対策が重要である。

현재 본병 발생국으로부터의 살아있는 소와 물소 및 이들 정액의 수입은 금지되어 있으므로 이들을 통한 본병 바이러스가 일본에 침입할 위험은 낮다. 한편 인근 국가에서 본병이 발생한 후 벡터가 일본에 침입하여 해당 벡터가 소 또는 물소에 접촉한 경우 본병 감염의 원인이 될 가능성을 부정할 수 없으므로 물가에서의 벡터 구제 등의 대책이 중요하다.

（２）農場での対策

② ベクターが牛等（飼養されている牛及び水牛をいう。以下同じ。）に接触し、感染が成立する可能性があることから、平時から害虫の防除を行うために殺虫剤の散布その他必要な措置を講ずること。

벡터가 소 등(사육되고 있는 소 및 물소를 말한다. 이하 동일)에 접촉해

감염이 성립할 가능성이 있으므로 평상시부터 해충 방제를 하기 위해 살충제 살포, 기타 필요한 조치를 강구할 것.

5 まん延の防止

(4)ワクチン

② 接種範囲

都道府県は、原則として、発生農場を中心とした半径 20km 以内の農場における家畜の所有者に対し、本病ワクチンの接種を推奨する。当該家畜の所有者は、本病ワクチンの使用について積極的に検討する。

ただし、複数の地域において発生が確認されるなど、適切なワクチン接種のために必要と考えられる場合は、都道府県はより広い地域においてワクチン接種を推奨することができる。

また、隣接する複数の都道府県で本病の発生が確認されるなど、より広い範囲に感染が拡大したと考えられる場合は、当該複数の都道府県に隣接する都道府県は、当該都道府県において本病の発生が確認されていなくとも、ワクチン接種を推奨する。

도도부현은 원칙적으로 발생농장을 중심으로 한 반경 20km 이내의 농장에서 가축의 소유자에게 본병 백신의 접종을 권장한다. 해당 가축의 소유자는 본병 백신의 사용에 대해 적극적으로 검토한다.

다만, 여러 지역에서 발생이 확인되는 등 적절한 백신접종을 위해 필요하다고 판단되는 경우 광역자치단체는 더 넓은 지역에서 백신접종을 권장할 수 있다.

또, 인접한 복수의 도도부현에서 본병 발생이 확인되는 등 더 넓은 범위로 감염이 확대되었다고 생각되는 경우에는 해당 복수의 도도부현에 인접한 도도부현은 해당 도도부현에서 본병 발생이 확인되지 않았더라도 백신접종을 권장한다.

카. 소 결

일본을 제외한 각국의 럼피스킨 대응 방역 규정을 살펴보면 공통적으로 럼피스킨 발병 시 이동 제한 정책 및 백신접종 정책과 함께 살처분 정책을 시행하며, 매개체가 되는 절지동물에 대한 예찰 활동과 구제를 규정하고 있습니다. 특히나, 럼피스킨이 발생하지 아니한 호주의 대응 규정은 럼피스킨에 감염될 수 있는 소와 물소 외에 럼피스킨에 감염되지 않는 동물에 대해서도 매개체의 전파를 우려하여 이동 제한 명령이 가능하도록 규정하고 있습니다.

일본의 경우 신고대상 전염병으로 분류하여 살처분 정책은 시행하고 있지 아니하지만, 럼피스킨 발생 시 이동 제한 및 백신 정책을 실시하도록 규정하고 있으며, 발생하지 아니한 상황에서도 매개체가 될 수 있는 벡터에 대한 구제를 규정하고 있습니다.

3. 국내 럼피스킨 대응 관련 방역 규정 검토

가. 현행 방역규정을 적용한 방역의 적법성 여부

현행 가축전염병의 방역에 관한 규정은 가축전염병 예방법, 가축전염병 예방법 시행령, 가축전염병 예방법 시행규칙, 해외악성가축전염병 방역실시요령, 구제역 방역실시요령(제36조 준용규정이 있어 럼피스킨 방역에 적용 가능) 등이 있습니다. 그러나 '**해외악성가축전염병 방역실시요령**'의 경우 **가축전염병 예방법 제19조의2 가축 등에 대한 일시 이동중지 명령**과 관련된 규

정이 존재하지 아니하며, 국내에서 발생하지 않았던 가축전염병의 국내 발생 시 대응 요령이 주된 내용으로 되어 있어, 이미 국내 발생으로 재유행이 우려되는 상황에서 백신접종 실시 방법으로 관리하는 방안에 관한 규정이 존재하지 아니하고, 기존 유행하였던 가축전염병들과 같은 접촉감염으로 전염되는 질병에 대응하기 위한 방역규정이므로 럼피스킨 전파의 주된 원인이 되는 흡혈성 매개체에 대한 구제 및 관리방안이 적시되어 있지 아니합니다. 그리고, '구제역 방역실시요령'의 경우 규정의 제목과 그 목적이 구제역을 방역하기 위한 규정으로 럼피스킨 방역 규정으로도 적용될 수 있음에 대한 축산농가와 관계자들의 접근 및 이해가 어려울 수 있으며, 구제역 전파의 원인이 접촉에 의한 감염이므로 럼피스킨 유행의 원인이 되는 흡혈성 매개체에 대한 구제 및 관리방안은 적시되어 있지 아니합니다.

그리고, 위 두 가지 규정을 럼피스킨 방역에 적용하는 경우 어느 상황에 어느 규정을 적용하여야 하는지 명확히 규정되어 있지 아니하여 일선 방역 현장에서 방역관련 처분의 근거 규정이 무엇인지 애매한 상황이 발생할 수 있는 문제점이 있습니다. 이와 같은 점들을 살펴보았을 때 해외 다른 국가들의 경우와 같이 럼피스킨에 대한 별도의 방역 규정을 두어 관리할 필요성이 있을 것으로 보입니다.

나. '럼피스킨병 방역실시요령' 제정의 필요성

2023. 국내 럼피스킨 방역 과정에서 현행 규정을 적용하여 가축전염병 예방법 제19조 제1항 및 가축전염병 예방법 시행규칙 제2조 제3항 제2호의 규정에 따른 방역 관련 행정명령을 시행하였으나 가축전염병 예방법의 해석에 관해서는 향후 수범자와 행정청 사이에 분쟁이 발생할 여지가 있어 방역 역량의 집중을 방해하는 문제가 발생할 수 있습니다. 기존 가축전염병 방역 규

정들을 검토한 결과 행정명령의 적법성에 관하여 법리적 판단에서 위법한 것으로 여겨질 수 있는 부분은 확인되지 아니하였으나 관련 규정을 적용하는데 일선 방역담당자 및 방역 정책의 수용자들이 행정법의 이론과 그 적용에 익숙하지 아니한 경우 상황에 적용되는 규정들을 쉽게 파악하는데 어려울 수도 있을 것으로 보여, 향후 만일 방역 정책 집행에 대한 다툼으로 법원의 재판이 있게 되는 경우 쟁점으로 다투어질 우려가 있는 것으로 판단됩니다.

해외 럼피스킨 방역 관련 대응 규정들을 살펴보면 각 국가는 럼피스킨의 전파 원인이 되는 매개체를 관리하고 그 전파를 사전에 차단하기 위한 연구에 관한 규정을 두는 등의 방법으로 대응하고 있음을 확인할 수 있으므로 ‘럼피스킨병 방역실시요령’을 별도로 제정하여 럼피스킨 전파의 주원인인 흡혈성 매개체에 대한 구제 및 관리방안을 규정하고, 럼피스킨 방역에서 가축전염병 예방법 제2조 제7호의 “가축전염병 특정매개체”에 대한 정의를 명시적으로 적시하는 방법으로 일선 방역 현장의 혼선을 방지하며, 입법불비 주장 등의 방역 역량 저해 요소를 사전에 차단하여, 효율적인 럼피스킨에 대한 대응이 가능할 수 있을 것으로 판단됩니다.

현행 관련 규정들의 적용에 관하여 검토하였을 때 해외악성가축전염병 방역실시요령 제2조 제1호의 요령에 관한 부분은 이미 국내에서 발생하여 개별 질병에 대한 방역실시요령이 규정되어 있는 질병도 기재되어 있는 등의 이유로 개정이 필요할 것으로 보입니다.

럼피스킨 방역 규정 비교

규정별 정책 비교	FAO (Lumpy Skin Disease A field manual for veterinarians)	WOAH (Lumpy Skin Disease)	해외악성가축전염병 방역실시요령
살처분 정책	+	+	+
백신 정책	+	+	+
이동제한 정책	+	+	+
매개체 통제 규정	+[4]	-	+[5]

주요국 정책 비교	EU	호주	미국	일본
살처분 정책	+	+	+	-[6]
백신 정책	+	+	+	+
이동제한 정책	+	+	+	+
매개체 통제 규정	+	+	+	+

다. 가축전염병 예방법 시행규칙 개정안 관련

럼피스킨 방역과 관련하여 논의 중인 가축전염병 예방법 시행령 및 시행규칙 개정안을 살펴보면 시행령 제2조의2 제3항에 ‘럼피스킨병’을 추가하여 럼피스킨이 정보공개대상 가축전염병임을 명확히 하는 방안의 경우 이미 럼피스킨병이 발생하였을 때 방역을 위하여 정보공개를 하고 있으므로 이에 관하여 법률적 근거를 명확히 하는 방안이 될 수 있을 것이므로 필요한 개정안으로 볼 수 있습니다.

시행규칙 제20조 제11항을 추가하여 ‘가축운송업자에게 가축운반차량에 대하여 차량 내부의 분변이 외부로 유출되지 않도록 관리할 의무를 부과하는 규정을 두는 방안’은 럼피스킨을 비롯한 다른 가축전염병의 항원이 동물의 분비물이나 동물유래 물질에 포함되어 전파가 일어날 수 있고 가축운

4) 예방목적으로 정기적 방충제 사용 권고
5) 전염병 발생지의 전염병 매개체 구제
6) 도태 정책 시행

반차량에서 운송되는 가축의 분변이 그 이동 경로를 따라 불특정한 지역으로 유출되어 항원 전파의 매개체 역할을 할 우려가 크다는 점을 고려하면 럼피스킨을 비롯한 다른 가축전염병의 방역에 실효적인 방안으로 판단됩니다.

그리고, 럼피스킨 방역 조치 근거를 강화하는 방안으로 시행규칙 제3조의3 [별표 1]을 개정하여 ‘해외 가축전염병 발생 정보공개 대상에 럼피스킨을 추가하여 럼피스킨 발생 국가를 방문한 축산관계자에 대한 소독 및 관리·감독의 근거를 마련하는 방안’, 시행규칙 제22조의5 제1항에 ‘럼피스킨이 발생하였을 때 **일시 이동중지 명령**을 할 수 있도록 럼피스킨을 구체적으로 적시하는 방안’, 시행규칙 제23조 제1항 제1호를 개정하여 ‘럼피스킨 대응 시 살처분 명령 근거를 명확히 하는 방안’ 등은 럼피스킨 대응에 관한 해외 방역 규정 사례 및 럼피스킨 바이러스의 역학적 특성 등을 고려하였을 때 럼피스킨의 국내 발병을 차단하고, 재발병 시에 조기종식을 위한 방역 조치의 실질적 효과를 기대할 수 있으며, 방역 일선에서의 혼선을 방지하는 방안이 될 수 있으므로 해당 규정들에 대한 정비가 필요할 것으로 판단됩니다.

첨 부 서 류

1. 럼피스킨병 방역실시요령 제정안

2. LUMPY SKIN DISEASE A field manual for veterinarians(Control and prevention of lumpy skin disease)

3. WOAH Lumpy Skin Disease Technical Disease Card

4. EU COUNCIL DIRECTIVE 92/119/EEC of 17 December 1992

5. GF-TADs SGE LSD9 Report for Turkey (Dr. Fahriye SARAÇ)

6. GF-TADs SGE LSD5 October 2017

7. 牛结节性皮肤病防治技术规范

8. Lumpy Skin Disease Control Strategy for Great Britain(June 2018)

9. AUSVETPLAN Response strategy Lumpy skin disease Version 5.0

10. USDA Lumpy skin disease standard operating procedures

11. COMMISSION IMPLEMENTING DECISION (EU) 2023/1521 of 19 July 2023

12. ランピースキン病防疫対策要領

럼피스킨병 방역실시요령

목 차

럼피스킨병 방역실시요령

제1장 총칙

제1조(목적) 이 요령은「가축전염병 예방법」제3조 제5항에 따라 럼피스킨병 발생을 방지하기 위한 예방 활동과 럼피스킨병 발생 시 실시하여야 하는 검사、살처분、이동제한、예찰、소독、사후관리 등 방역조치사항을 구체적으로 정함으로써 럼피스킨병 확산을 방지하고 조기 근절을 도모하는 데 목적이 있다.

제2조(정의) 이 요령에서 사용하는 용어의 뜻은 다음과 같다.

1. "환축"이란 농림축산검역본부(이하 "검역본부"라 한다) 또는 농림축산검역본부장(이하 "검역본부장"이라 한다)으로부터 럼피스킨병 정밀진단기관으로 지정받은 특별시장、광역시장、특별자치시장、특별자치도지사 또는 도지사(이하 "시、도지사"라 한다) 소속 가축방역기관(이하 "시、도 가축방역기관"이라 한다)의 정밀검사에서 럼피스킨병에 걸린 것으로 확인된 가축을 말하며, "의사환축"이란 검역본부 또는 시、도 가축방역기관 소속 가축방역관이 임상검사 등을 실시한 결과 럼피스킨병에 걸렸다고 믿을만한 상당한이유가 있다고 판단한 가축을 말하며, "의심축"이란 가축의 소유자 또는 관리자 축산관련 종사자 등이 럼피스킨병으로 의심하여 신고한 가축으로 검역본부 또는 시、도 가축방역기관의 가축방역관이 검사하기 전의 가축을 말한다.
2. "발생농장"이란 의심축, 의사환축 또는 환축이 발생한 가축의 사육시설(이하 "축사"라 한다)이 있는 농장을 말하며, “발생지역”이란 발생농장이 소재한 시、군、구를 말하며, "발생지"란 발생농장이 소재한 장소로 리 단위보다 작은 동일한 생활권의 마을 단위 개념으로 흡혈성 매개체의 이동거리 등을 감안하여 시장、군수、구청장(이하 "시장、군수"라 한다)이 시、도 가축방역기관의 장(이하 "시、도가축방역기관장"이라 한다)과 협의하여 정한다.
3. "관리지역"이란 럼피스킨병에 오염되었거나 오염되었다고 의심되는 지역으로 발생농장을 중심으로 하여 반경 500m 이내의 지역을 말한다. 다만, 시장、군수는 해당 지역의 축산업 형태, 지형적 여건, 생활권, 계절적 요인 또는 역

학적 특성 등을 감안하여 관리지역의 범위를 시·도지사 소속 지방 가축방역심의회위원, 시·도 관계관, 시·군 관계관 및 검역본부 현지 파견담당관 및 「가축전염병 예방법」(이하 "법"이라 한다) 제9조의2에 따른 가축전염병기동방역기구(이하 “기동방역기구”라 한다)와 협의를 거쳐 이를 확대하거나 축소할 수 있다.

4. "보호지역"이란 럼피스킨병의 추가 발생이 우려되는 지역으로서 발생농장을 중심으로 하여 반경 500m부터 3km 이내의 지역을 말한다. 다만, 시장·군수는 해당 지역의 축산업 형태, 지형적 여건, 생활권, 계절적 요인, 역학적 특성 및 럼피스킨병 매개체(이하 “매개체”라 한다)의 생태 등을 감안하여 보호지역의 범위를 시·도지사 소속 지방 가축방역심의회위원, 시·도 관계관, 시·군 관계관 및 검역본부 현지 파견담당관이나 기동방역기구와 협의를 거쳐 이를 확대하거나 축소할 수 있다.

5. "예찰지역"이란 럼피스킨병 확산이 우려되는 지역으로서 발생농장을 중심으로 반경 3km를 초과하여 10km 이내의 지역을 말한다. 다만, 시장·군수는 해당 지역의 축산업 형태, 지형적 여건, 생활권, 계절적 요인, 역학적 특성 및 매개체의 생태 등을 감안하여 예찰지역의 범위를 시·도지사 소속 지방 가축방역심의회 위원, 시·도 관계관, 시·군 관계관 및 검역본부 현지 파견담당관이나 기동방역기구와 협의를 거쳐 이를 확대·축소하거나 설정하지 아니할 수 있다.

6. "방역지역"이란 관리지역·보호지역·예찰지역을 말한다.

7. "발생일"이란 제8조에 따른 의심축 신고를 받은 날을 말하며, 신고를 받지 아니하고 검역본부 또는 시·도 가축방역기관이 정밀검사를 실시한 경우는 해당 환축의 시료를 채취한 날을 말한다.

8. "예방적 살처분"이란 지리적·역학적 연관성 등에 따라 럼피스킨병 감염이 의심되어 예방적으로 소 등의 감수성동물을 살처분하는 것을 말한다.

9. "가축 등에 대한 일시 이동중지(Standstill)"란 법 제19조의2에 따라 럼피스킨병이 국내에서 발생 시 확산 방지를 위하여 전국(또는 지역별)의 모든 소 농장 및 관련 작업장 등에 가축·사람·차량·물품 등의 출입을 일시 중지(48시간 이내 - 필요시 연장)하는 조치를 말한다.

10. "권역"이란 기본적으로 시·도 또는 시·군·구로 구분된 행정구역을 말하

고, 필요시 세부적으로 농림축산식품부장관 또는 검역본부장이 가축의 사육밀도, 사료 공급, 가축 이동, 도축장 이용 형태, 매개체의 생태 등 역학적 사항을 고려하여 지역을 구획하여 정할 수 있으며, 럼피스킨병이 발생한 권역을 “발생권역”이라 한다.

11. “럼피스킨병 매개체”란 럼피스킨병을 옮길 우려가 있는 흡혈파리, 모기, 진드기 등의 절지동물을 말한다.

12. 가축전염병 예방법 시행규칙 제2조 제3항 제1호에서 규정한 농림축산식품부장관이 정하여 고시하는 가축전염병 매개체란 흡혈성 매개체, 사람, 가축, 축산차량 등 방역상 제한의 필요가 있는 요소를 말한다.

13. “거점소독시설”이란 법 제17조의3 및 같은 법 시행규칙 제20조의3에 따른 시설출입차량이 방역 관련 규정에 따라 이동 시 소독을 실시하고 소독필증을 발급하는 시설로, 시·군·구 또는 시·도 가축방역기관이 설치·운영하는 시설 및 관련 지침에 따라 별도로 지정받은 민간시설을 말한다.

제3조(적용 범위) 이 요령은 국내에서 사육되고 있는 소와 물소 등 럼피스킨병 병원체에 감수성이 있는 동물(이하 "감수성동물"이라 한다), 감수성동물의 생산물, 럼피스킨병 병원체에 오염되었거나 오염되었다고 믿을만한 상당한 근거가 있는 물건·차량·사람·매개체 등에 적용한다.

제2장 예방 활동

제4조(럼피스킨병 방역 대책의 수립·시행) ① 농림축산식품부장관, 시·도지사 및 시장·군수는 법 제3조 제1항에 따라 럼피스킨병의 예방 및 발생 시 확산 방지를 위하여 럼피스킨병 방역 대책을 수립하고 이를 시행하여야 한다.

② 제1항에 따른 럼피스킨병 방역 대책에는 법 제3조 제1항 각호에서 정한 사항 외에 럼피스킨병 방역에 관계하는 정부기관·지방자치단체·축산관련단체

·축산농가 등의 역할 분담, 럼피스킨병 발생 시 대응체계 확립을 위한 발생상황 및 방역조치 전파체계, 이동통제·소독·살처분 등 긴급방역을 위한 인력·장비·장소 확보방안, 가상방역훈련계획, 축산농가·관계자에 대한 교육 홍보방안 등이 포함되어야 한다.

③ 농림축산식품부장관 또는 검역본부장은 지방자치단체의 럼피스킨병 방역대책 추진실태를 점검할 수 있으며, 점검 결과 미흡하거나 부적정한 사항을 발견한 때에는 해당 지방자치단체의 장에게 시정을 요구하여야 한다.

제5조(럼피스킨병의 유입 방지를 위한 대책 추진) ① 검역본부장은 럼피스킨병 병원체의 국내 유입을 방지하기 위하여 검역대상물품, 해외여행자, 수송 수단 등에 대한 국경검역 대책을 수립하고 이를 시행하여야 한다.

② 검역본부장은 제1항에 따른 국경검역 대책을 수립하는 때에는 외국의 럼피스킨병 발생 동향, 럼피스킨병 병원체의 유입경로별 및 검역대상 물품별 위험분석 결과 등을 고려하여야 한다.

③ 제1항에 따른 국경검역 대책에는 수입되는 검역대상물품 등에 대한 럼피스킨병 병원체의 정밀검사 계획과 국경 및 국내에서의 매개체 예찰, 유입위험도가 큰 항만 등에 대한 방제 활동, 축산농가(가족 포함)·축산관련종사자 출국신고 및 입국 시 신고·소독, 해외여행객 신발 소독 및 휴대 축산물 검색, 외국인 근로자에 대한 교육·홍보방안 및 국제우편물 등의 검색 등이 포함되어야 한다.

제6조(럼피스킨병 예찰) ① 농림축산식품부장관, 검역본부장 또는 지방자치단체의 장은 제4조에 따른 럼피스킨병 방역 대책을 효율적으로 수행하기 위하여 럼피스킨병에 관한 예찰 계획을 수립·시행하여야 한다.

② 검역본부장, 시·도 가축방역기관장 및 법 제9조에 따른 가축위생방역지원본부장은 제1항에 따른 럼피스킨병 예찰 계획에 따라 매개체 채집·동정 및 정밀검사, 감수성동물에 대한 시료채취 및 정밀검사 등 예찰·검사를 실시하여야 한다.

제7조(가축의 소유자등의 방역 의무 등) ① 가축의 소유자 또는 관리자(이하 "소유자등"이라 한다)는 럼피스킨병의 발생을 예방하기 위하여 축사 및 주변을 청결히 하고 법 제17조 및 같은 법 시행규칙 제20조에 따른 소독설비 및 방역시설을 갖추고 주기적인 소독(매개체에 대한 구제활동을 포함한다)을 실시해야 하며, 법 제17조의6 및 같은 법 시행규칙 제20조의9의 방역기준을 준수하여야 한다.

② 법 제3조의4에 따른 중점방역관리지구에서 감수성동물의 사육이나 축산 관련 영업을 하는 자는 농림축산식품부령으로 정하는 바에 따라 방역복 착용 등을 위한 전실(前室), 울타리·담장 등 방역 시설을 갖추고 연 1회 이상 방역 교육을 이수하여야 한다.

③ 가축위생방역지원본부, 농업협동조합법에 따른 농협경제지주, 수의사법 제23조에 따라 설립된 대한수의사회 및 축산 관련단체는 국가 및 지방자치단체의 럼피스킨병 방역 대책에 적극협조하여야 한다.

④ 법 제17조 제1항 각호에 해당하는 자는 해당 시설을 출입하는 자 및 차량에 대한 출입 기록을 국가가축방역통합정보시스템(이하 "KAHIS"라 한다)에 입력하는 방법 등으로 작성하고 이를 1년 동안 보존하여야 한다.

제8조(백신 수급·비축 등) ① 농림축산식품부장관은 법 제3조 제1항의 규정에 따라 럼피스킨병 예방을 위하여 백신접종에 필요한 백신 수급·접종 등에 대한 계획을 마련하고, 이를 시행하여야 한다.

② 검역본부장은 제1항의 계획에 따라 필요한 백신을 구입하여 배부하여야 하고, 이를 위하여 위험분석 등을 실시하고, 럼피스킨병 백신 완제품 또는 백신 제조용 항원을 적정물량을 비축하여야 하며, 원활한 백신 수급을 위해 백신 완제품과 항원 수입경로를 사전에 확보하고 있어야 한다.

③ 지방자치단체의 장은 농가에 공급된 럼피스킨병 백신 접종상황을 점검하고, 이를 농림축산식품부장관과 검역본부장에게 보고하여야 한다.

④ 검역본부장은 럼피스킨병 발생에 대비하여 다음 각호의 사항을 이행하고, 농림축산식품부장관에게 보고하여야 한다.
1. 럼피스킨병 백신과 관련된 기술적 검토를 위해 백신전문가협의회를 구성하여 운영
2. 럼피스킨병 발생 시 적합한 백신을 신속하게 확인하기 위해 항혈청을 확보하여 운영
3. 럼피스킨병 백신주의 적합 여부를 평가하기 위해 백신을 수입 또는 제조하는 자로부터 백신 바이러스를 확보하여 관리
4. 럼피스킨병 백신주 적합성 평가를 위한 평가 기준, 방법 등 구체적인 사항을 정하여 운영
5. 국내 사용에 필요한 럼피스킨병 백신주 확보, 확보한 백신주에 대한 적합성 평가, 사용하고 있는 백신주의 적합 여부에 관한 정기적으로 평가

⑤ 농림축산식품부장관은 효과적인 백신주 사용을 위해 검역본부장의 제3항의 검토 결과를 토대로 가축방역심의회 자문 등을 통해 백신주를 선정하여야 한다.

제3장 의심축 및 의사환축 발생 시 방역요령

제9조(의심축 발생 시 조치) ① 의심축을 발견한 가축의 소유자등, 수의사, 축산계열화사업자, 대학·연구소 등의 연구책임자, 동물약품 또는 사료 판매자는 법 제11조에 따라 럼피스킨병 신고 전용전화(1588-0000, 1588-0000) 또는 다음 각호의 어느 하나에 해당하는 기관에 신고하여야 한다.

1. 당해 가축의 소재지를 관할하는 시장·군수·구청장(읍·면·동장 포함)
2. 시·도지사 또는 시·도 가축방역기관장
3. 검역본부장

② 제1항의 신고를 받은 기관은 법 제19조에 따라 의심축의 소유자등, 의심축을 발견한 수의사, 축산계열화사업자, 대학·연구소 등의 연구책임자, 동물약품 또는 사료 판매자에 대하여 다음 각호의 조치를 취하도록 하고 시·도지사, 시·도가축방역기관장 및 검역본부장에게 보고하여 지휘를 받아야 하며, 시·도가축방역기관장은 검역본부가 운영하는 KAHIS에 별지 제1호 서식의 "럼피스킨병 의심축 신고서"를 등록하여야 한다.

1. 소유자등은 농장 내에 머물도록 지시하고, 연락이 가능하도록 조치
2. 농장의 가축, 분뇨, 장비, 물품 등의 이동제한
3. 농장의 가축 운반차량, 기타 차량의 출입 제한
4. 농장 내 모든 사람의 출입금지

③ 의심축 신고를 보고 또는 보고받은 시·도가축방역기관장은 2인 이상의 가축방역관을 즉시 의심축 발생농장에 파견시켜 발생농장의 의심축을 포함한 모든 소에 대해 임상검사(폐사나 피부발진, 발열 등 임상증상 여부 확인) 등을 실시하여야 한다.

④ 제3항에 따라 의심축 발생농장에 파견되는 가축방역관은 "럼피스킨병 긴급행동지침(SOP)"과 별표 1의 "검사시료 채취 준비물"을 휴대하여야 한다.

⑤ 시·도가축방역기관장은 발생농장까지 도착하는데 장시간이 소요될 것으로 예상 되는 경우에는 해당 시·군 관계관 또는 가축위생방역지원본부 초동방역팀과 농협경제지주 공동방제단이 먼저 도착하도록 하여 이동제한, 소독 등 차

단방역을 실시하도록 조치하여야 한다.

⑥ 제3항에 따라 임상검사를 실시한 가축방역관은 의사환축을 발견한 때에는 시장·군수, 시·도지사, 시·도가축방역기관장 및 검역본부장에게 전화 또는 모사 전송으로 우선 보고하고, 시·도가축방역기관장은 별지 제2호 서식의 "럼피스킨병 의사환축 발생 신고서"를 작성하여 KAHIS에 등록하고 시료를 채취·운송하며, 검역본부장 또는 시·도 럼피스킨병 정밀진단기관의 장은 신속한 정밀검사를 실시하여야 한다.

⑦ 제3항에 따라 임상검사를 실시한 결과, 의사환축이 아니라고 판단되는 때에는 가축방역관은 시·도가축방역기관(시·도 럼피스킨병 정밀진단기관이 없는 시·도는 검역본부)에 럼피스킨병 검사를 포함한 병성감정을 의뢰하여 의심축의 소유자 등에게 병명을 알려 주어야 하며, 병성감정 결과가 나올 때까지 발생농장에 대한 방역 조치는 유지하여야 한다.

제10조(의사환축 발생 시 조치) ① 의심축 발생농장에서 의사환축을 발견한 때에는 가축방역관은 법 제19조제1항에 따라 즉시 다음 각호의 조치를 하여야 한다.

1. 의사환축 발생농장의 출입구를 1개소로 제한하여 통제초소를 설치하고, 통제초소에는 소독조·소독장비의 설치, 이 경우 통제소의 설치장소는 소가 사육되고 있는 인접축사·발생농장 출입구·도로 현황 등을 고려하여 결정
2. 축사내외·차량·축산기자재에 대한 청소(세척)·소독 및 사람에 대한 소독 실시
3. 의사환축은 다른 가축과 격리하여 계류시키고 축사 안의 모든 가축에 대해 축사밖으로 이동 금지
4. 발생농장 정문에 별표 2의 "출입금지 표시판"을 부착하여 사람·차량 등의 출입금지
5. 의사환축과 관련된 오염우려 물품의 농장 밖 반출 금지
6. 검역본부나 시·도 정밀진단기관 소속 관계관의 정밀검사용 시료의 채취

협조
7. 정밀검사 결과가 나올 때까지 소유자 등은 발생농장 내 상주
8. 의심축 발생을 신고한 수의사, 인공수정사, 기타 축산관련 종사자에 대해서는 럼피스킨병 정밀검사 등에 의한 확진 판정이 나올 때까지 외출을 통제하고 다른 농장 관계자 등과 만나지 않도록 조치
9. 의사환축을 운반한 차량, 운전자에 대한 이동제한, 소독 등 조치(단, 정밀검사결과 음성인경우 조치 해제)
10. 의사환축이 발견된 농장, 도축장과 역학적으로 관련된 농장에 대한 이동제한, 소독, 예찰 등 조치(단, 정밀검사 결과 음성인경우 조치 해제)
11. 축사 내·외 및 발생농장 인근의 매개체 서식 활동 현황 확인

② 가축방역관은 의사환축 발생농장과 소 농장이 인접해 있거나 밀집되어 있는 때에는 당해 발생지에 대하여는 제1항 제3호부터 제5호까지의 조치를 취할 수 있다.

제11조(시·도지사의 조치) 제9조 제6항에 따라 의사환축 발생보고를 받은 시·도지사는 보고받은 사항을 즉시 농림축산식품부장관에게 모사전송 또는 전화로 보고하고 다음 각호의 조치를 하여야 한다.
1. 법 제51조에 따라 검역본부장 및 다른 시·도지사에게 의사환축 발생사실 즉시 통보
2. 법 제3조에 따라 시·군 및 시·도가축방역기관에 긴급방역 조치사항 시달 및 점검
3. 럼피스킨병 환축 발생에 대비하여 법 제3조, 제19조 제1항 및 제19조의2에 따라 다음 각 목의 방역 조치사항 준비
가. 가축 등에 대한 일시 이동중지 명령 전파 준비 및 점검
나. 방역지역별 소농가, 소 사육 관련 종사자 및 축산관련 작업장 현황 파악
다. 방역지역 및 시·군별 통제초소와 축산차량 전담 소독장소 설치
라. 살처분·사체처리, 이동통제, 소독, 예찰 등 초동방역을 위한 인력·장비·약품·장소 등 확보상황 점검

마. 지방경찰청, 군부대 등의 방역 인력 지원체계 확인
바. 럼피스킨병 방역대책본부(본부장 : 시·도지사) 및 상황실 설치
사. 발생 시·군 등에 긴급방역비 지원을 위한 예비비 확보 추진
4. 제16조 제1항 제2호에 따른 이동제한의 대상이 되는 가축의 도태 또는 도축·가공 등을 위한 처리시설의 지정 계획 수립
5. 시·도가축방역기관장에게 발생농장의 가축에 대한 임상관찰 및 가축의 이동사항·출입자·출입차량 등에 대한 역학조사(매개체의 서식·활동에 대한 조사를 포함한다)를 실시하고 현장방역 지원 지시

제12조(시장·군수의 조치) ① 의사환축의 발생지를 관할하는 시장·군수는 다음 각호의 조치를 하여야 한다.
1. 법 제19조 제1항에 따라 발생농장(제10조 제2항에 해당하는 경우에는 발생지를 말한다)에 대한 가축의 이동제한 및 가축위생방역지원본부 초동방역팀 및 농협경제지주 공동방제단 배치(이 경우 초동방역팀과 공동방제단은 음성판정 또는 살처분 및 잔존물 처리가 완료된 후 해당 시군에 관련사항을 인계하고 철수하여야 한다.)
2. 방역지역 설정 준비 및 방역지역별 소농가, 축산 관련 작업장 및 종사자 현황 등을 조사하여 관할 시·도지사에게 보고
3. 럼피스킨병 환축발생에 대비하여 법 제3조, 제19조 제1항 및 제19조의2에 따라 다음 각 목의 방역 조치사항 준비
가. 가축 등에 대한 일시 이동중지 명령 전파 준비 및 점검
나. 방역지역별 소농가, 축산관련 종사자 및 축산관련 작업장 현황 파악
다. 방역지역별 통제초소와 축산차량 전담 소독장소 설치
라. 살처분·사체처리, 이동통제, 소독, 예찰, 방제 등 초동방역을 위한 인력·장비·약품·장소 등 확보상황 점검
마. 지방경찰청, 군부대 등의 방역인력 지원체계 확인
바. 럼피스킨병 방역대책본부(본부장 : 시장·군수) 및 상황실 설치

② 시장·군수는 방역지역 안에서 럼피스킨병이 추가로 발생한 때에는 시·도

지사와 협의하여 다음 각호와 같이 방역지역을 다시 설정하여야 한다. 다만, 각 방역지역 간 경계와 인접된 곳에서 발생한 경우는 그 범위를 확대하거나 축소할 수 있다.

1. 관리지역 및 보호지역 안에서 추가 발생 시 : 최초 발생 당시의 방역지역을 유지

2. 예찰지역 안에서 추가 발생 시 : 추가 발생농장을 중심으로 관리지역, 보호지역 및 예찰지역 재설정. 이 경우 당초의 방역지역과 추가 방역지역이 중첩되는 지역에 대하여는 추가 방역지역에 대한 방역조치기간을 적용한다.

제13조(시·도 가축방역기관장의 조치) ① 시·도가축방역기관장은 시·도지사의 지시를 받아 다음 각호의 조치를 하여야 한다.

1. 법 제12조에 따라 시장·군수, 시·도지사 및 검역본부장에게 의사환축 발생 사실 보고 등 상황전파

2. 법 제13조에 따라 의사환축 발생농장의 가축 이동사항, 출입자, 출입차량 등에 대한 역학조사 실시 및 법 제19조 및 같은 법 시행규칙 제22조의3에 따른 오염우려 물품을 포함한 다양한 시료를 채취하여 검역본부에 제공

3. 법 제7조에 따라 의사환축 발생농장 안에서 사육되고 있는 감수성동물의 임상관찰을 위한 소속 가축방역관의 파견 및 임상검사 실시

4. 현장파견 가축방역관으로 하여금 별표 1의 검사시료 채취에 필요한 준비물을 갖추고 출장하여 별표 3의 기준에 따라 검사시료를 채취하고 별지 제3호서식의 시료채취 내역서를 작성하여 정밀검사가 실시될 수 있도록 조치

5. 발생지의 소독, 통제초소 운영 및 살처분 등 방역 기술지원을 위한 소속 가축방역관의 상주

6. 럼피스킨병 방역대책상황실 설치 준비

② 시·도 가축방역기관장은 의사환축에 대한 검역본부의 럼피스킨병 정밀검사 결과 음성으로 판정된 경우에는 해당 동물에 대하여 병성감정을 실시하고 그 결과를 농림축산식품부장관, 시·도지사, 검역본부장에게 보고하여야 한다.

제14조(농림축산식품부장관의 조치) 농림축산식품부장관은 의사환축 발생보고를 받은 때에는 시·도지사와 검역본부장의 방역조치 상황을 확인하고, 다음 각호의 조치를 하여야 한다.

1. 법 제52조의2에 따라 행정안전부 등 관계부처에 의사환축 발생상황 전파
2. 럼피스킨병 환축 발생에 대비하여 다음 각 목의 방역조치사항 준비
 가. 법 제19조의2에 따른 가축 등에 대한 일시 이동중지 명령 전파 준비 및 점검
 나. 법 제9조의2에 따른 가축전염병기동방역기구 현장파견
 다. 럼피스킨병 방역대책본부(본부장 : 장관) 및 상황실 설치
3. 의사환축의 발생정도·발생지의 축산·지형 형태, 매개체의 생태 등을 감안하여 필요하다고 판단되는 때에는 살처분 범위 조정, 긴급방역 조치 등에 관하여 법 제4조에 따른 가축방역심의회에 부의

제15조(검역본부장의 조치) 검역본부장은 의사환축 발생보고를 받은 때에는 즉시 그 사실을 농림축산식품부장관에게 보고한 후 다음 각호의 조치를 하여야 한다.

1. 시·도 가축방역기관의 관계관에게 지체없이 채취한 검사시료를 신속히 검역본부 또는 시·도 럼피스킨병 정밀진단기관으로 운송하도록 조치하고 시·도 가축방역기관의 검사결과 양성으로 판정된 때에는 1차 역학조사는 관할 시·도가축방역기관장이 실시하게 하고, 2차 역학조사를 실시(다만, 긴급을 요하는 경우에는 검역본부장 및 시·도가축방역기관장이 공동으로 실시)
2. 제1호의 검사시료에 대한 정밀검사를 실시하고, 그 검사결과를 농림축산식품부장관, 해당 시·도지사 및 그 밖의 시·도지사에게 보고하거나 통보
3. 법 제19조의2에 따른 가축 등에 대한 일시 이동중지 명령 전파 준비 및 점검
4. 법 제9조의2에 따른 가축전염병기동방역기구 현장파견
5. 럼피스킨병 방역대책상황실 설치
6. 시장·군수, 시·도가축방역기관장 및 시·도지사의 방역조치에 필요한 조치 및 기술지원

제16조(임의 병성감정 등 금지) ① 의사환축에 대한 검사시료의 채취는 시·도 가축방역기관의 관계관이 직접 행한다. 이 경우 시·도 가축방역기관의 관계관이 채취할 수 있는 검사시료는 관할 지역 내에서 발생한 의사환축에 한한다.
② 제1항에도 불구하고 검역본부장은 검역본부의 관계관에 의한 시료 채취가 필요하다고 판단되는 경우 해당 시·도와 협의하여 검역본부 관계관이 직접 시료를 채취하여 검사하게 할 수 있다.
③ 시·도가축방역기관장은 채취한 검사시료에 별지 제1호부터 제3호까지의 서식을 첨부하여 검역본부장 또는 시·도 럼피스킨병 정밀진단기관장에게 정밀검사를 의뢰하여야 한다.
④ 제1항의 검사시료에 대한 정밀검사는 검역본부의 차폐시설 또는 시·도 럼피스킨병 정밀진단기관의 차폐시설에서 실시한다.
⑤ 검역본부장은 제9조 및 제1항, 제3항에 따른 검사시료의 채취 및 정밀검사 업무를 수행할 시·도 럼피스킨병 정밀진단기관을 지정하며, 그 지정을 위한 차폐시설·검사장비·검사인력 등의 기준, 지정절차 및 사후관리방법 등을 정하여 운용하여야 한다.
⑥ 가축방역관은 일상적인 방역업무와 관련하여 죽거나 병든 감수성동물에 대한 병성감정(실험실 진단을 포함한다)을 실시하는 과정에서 럼피스킨병에 걸린 것으로 의심이 되는 때에는 그 행위를 즉시 중단하고 제10조에 따른 조치를 하여야 한다.

제4장 백신접종 실시 후 환축 발생 시 방역요령

제17조(상황전파 및 대응체계 가동) ① 농림축산식품부장관은 검역본부장으로부터 제15조 제2호에 따른 정밀검사 결과 럼피스킨병 발생보고를 받은 때(럼피스킨병 백신접종 실시 후 1년이 경과하지 아니한 경우)에는 육상동물위생규약(Terrestrial Animal Health Code)에 따라 세계동물보건기구(WOAH)에 럼

피스킨병 발생 사실을 알리고 법 제19조의2의 규정에 따라 전국 **일시 이동중지 명령**(별표 4)을 하여 전국 또는 지역의 감수성동물 사육농장, 축산관련 작업장 등에 48시간 이내(법 제19조의2 제2항 단서에 따라 필요시 연장) 가축·사람·차량의 출입을 일시 중지토록 조치하여야 하며, 행정안전부·기획재정부·국방부·외교부·경찰청 등 중앙 행정기관의 장에게 럼피스킨병 방역 추진에 필요한 협조사항을 요청하여야 한다.

② 검역본부장, 시·도지사, 시장·군수·구청장은 제1항의 일시 이동중지 명령이 시행되면 모든 소 사육농장, 축산관련 작업장 경영자, 축산관련 종사자 등에게 이를 전파하고 일시 이동중지 명령기간 동안 감수성동물 사육농장, 축산관련 작업장 등에 가축·사람·차량이 출입하지 않도록 지도·점검을 실시하여야 한다.

③ 제1항의 일시 이동중지 명령 기간 내에 농림축산식품부장관, 검역본부장은 발생농장 등에 대한 역학조사 및 방역·방제 조치 등을 실시하고, 긴급 백신접종이 추가로 필요한지 검토하여 계획을 수립하고 검역본부장에게 백신 공급계획을 마련하도록 하여야 한다.

④ 농림축산식품부장관, 검역본부장은 럼피스킨병 방역대책상황실(이하 "상황실"이라 한다)을 가동하고 발생 시·군·구에 초동방역팀을 파견하여 신속하고 효율적인 현장방역이 이루어지도록 하여야 한다.

⑤ 발생 시·도 및 시·군·구 가축방역기관은 상황실을 가동하여야 하며 발생 시·도 및 시·군·구는 기관장을 본부장으로 하는 럼피스킨병 방역대책본부를 가동하여야 한다.

⑥ 농림축산식품부장관은 럼피스킨병이 확산하거나, 확산 우려가 있다고 판단되는 경우는 가축방역심의회를 개최할 수 있다.

⑦ 농림축산식품부장관, 검역본부장, 시·도지사, 시장·군수·구청장은 축산

농가, 축산관련 단체(업계) 및 소비자단체등에게 방역상황, 정부 방역대책 및 축산물의 안전성 등에 대한 홍보를 실시하여야 한다.

⑧ 시·도지사는 럼피스킨병 발생상황에 따라 지방가축방역심의회 및 농림축산식품부장관과의 협의를 거쳐 일시이동 중지를 명령할 수 있다.

제18조(이동제한 등 조치) ① 발생농장을 관할하는 시장·군수·구청장은 법 제19조 제1항의 규정에 따라 발생농장, 발생지(축산밀집 지역 등을 포함) 또는 관리지역 및 보호지역에 현장 통제초소를 설치하고 다음 각호의 방역조치를 취하여야 한다.

1. 발생농장 입구의 눈에 잘 띄는 장소에 럼피스킨병 발생 사실과 출입금지를 기재한 별표 2의 출입금지 표지판을 설치
2. 발생농장, 관리지역 및 보호지역에서 사육되는 소의 격리·억류 또는 이동제한 명령. 다만, 보호지역에서 이동제한은 백신접종 상황 등을 고려하여 조정할 수 있음
3. 발생농장의 가축 소유자등, 동거가족 및 축산관련 종사자 등에 대하여 살처분이 완료된 날부터 7일이 경과 될 때까지 외출을 통제하고, 부득이한 경우에 한하여 가축방역관의 통제하에 세척·소독 등 방역조치를 실시한 후 외출 허용
4. 발생농장, 관리지역 및 보호지역 주요 도로에 이동통제 초소 및 소독시설을 설치·운영하고, 사람·가축 또는 차량에 대하여 출입 통제, 소독 등 차단방역 실시
5. 의심축을 신고한 수의사, 인공수정사, 기타 축산관련 종사자에 대해 럼피스킨병 확진판정을 받은 날로부터 7일간 가축사육농장 방문을 금지(진료 포함)하고 감수성 가축과 접촉하지 않도록 조치(단, 방역조치 후 음성으로 확인되면 이동제한을 해제할 수 있으며, 차량은 세척·소독 후 운행하여야 한다.)

② 발생농장(역학관련 농장 포함)을 관할하는 시·도지사는 KAHIS에서 발생농장의 가축 이동 및 출하 정보를 파악하여 관할 시장·군수·구청장으로 하여

금 필요한 방역조치를 취하도록 조치하여야 한다.

③ 럼피스킨병 최초 발생 시 발생한 시·도(발생 시·군·구가 타 시·도와 인접한 경우 인접 시·군·구도 포함) 내 시장·군수·구청장은 법 제27조의 규정에 따라 가축 시장을 폐쇄한다.(타 시·도에서 추가 발생 시에는 전국 가축 시장 폐쇄)

제19조(살처분 등 조치) ① 발생농장 관할 시장·군수·구청장은 법 제20조의 규정에 따라 관할 시·군내에서 럼피스킨병이 발생한 농장에 대하여 발생축과 같이 사육하는 소(동거축) 전 두수를 대상으로 임상 정밀검사를 실시하고, 정밀검사 결과 항원양성인 가축에 대하여 소유자에게 해당 소에 대하여 살처분을 명하여야 하고, 다른 농장에서 추가로 럼피스킨병이 발생한 경우 해당 농장에 대하여 간이항원진단킷트 검사결과 항원 양성인 개체와 럼피스킨병 임상증상을 나타내는 개체에 대하여 살처분을 명하여야 한다. 다만 다음 각호에 해당하는 가축에 대하여는 검역본부장 또는 중앙가축방역심의회 등 외부 전문가의 기술자문을 받아 살처분 할 수 있다.

1. 발생농장(최초 발생농장은 제외)과 관리지역 안에서 사육되고 있는 감수성 동물
2. 환축의 사체를 사료로 급여한 가축
3. 역학적으로 럼피스킨병의 감염이 의심되는 감수성동물
4. 그 밖에 럼피스킨병의 확산 차단을 위하여 가축방역심의회의 심의를 받아 필요하다고 인정되는 경우

② 시장·군수·구청장은 제1항에 따라 살처분을 명령한 경우에는 다음 각호의 절차에 따라 살처분 및 사체를 처리하여야 한다.

1. 발생 농가에게 살처분 명령서를 전달하고 농가 준수사항 등을 설명하고 설득
2. 살처분 명령 통보 이후, 살처분 가축 등의 조사와 보상금 평가실시
3. 보상금 평가 완료 후, 살처분 및 사체처리 방법·장소 등을 신속히 결정하

여 실시
4. 살처분은 가축방역관의 감독하에 동물복지를 최대한 고려하여 실시하며, 사체는 농장내 또는 농장 인근에서 FRP 저장조, 랜더링, 소각 등 친환경적으로 처리하고, 이들 방법으로 사체처리가 곤란할 경우에는 매몰 처리
5. 살처분한 가축을 다른 장소로 이동하여 처리하는 경우에는 혈액, 타액, 배설물 등이 유출되지 않도록 비닐 등으로 밀봉하고 덮개 등이 있는 차량으로 운반
6. 살처분·사체 처리장소에 개·고양이나, 설치류 등 야생동물의 접근을 막고 구서 및 구충 실시(럼피스킨병 매개체에 대한 농장 내·외부 방제 포함)
7. 살처분 및 사체처리에 동원된 인력·장비 등에 대해 소독, 기록유지 등 사후관리

제20조(역학조사) ① 의사환축 및 발생농장에 대한 1차 역학조사는 관할 시·도 가축방역기관장이 실시하고, 발생농장에 대한 2차 역학조사는 검역본부장이 실시하며, 긴급을 요하는 경우에는 검역본부장 및 시·도 가축방역기관장이 공동으로 실시하여야 한다.

② 제1항에 따른 1차 역학조사반은 농가 내부 및 차량 등의 다양한 오염원 시료를 확보하여 발생원인 규명을 위한 역학분석 및 살처분 보상비 평가를 위한 증거자료로 활용할 수 있도록 조치하고, 1차 역학조사내용을 검역본부장, 관할 시·도지사 및 시장·군수·구청장에게 전달하여 신속한 방역조치가 이루어지도록 하여야 한다.

③ 역학조사는 다음 각호와 같이 실시하고, 정밀검사 또는 역학조사 결과 추가적인 조사가 필요한 경우 이를 확대하여 실시 할 수 있다.
1. 의사환축이 발생한 날부터 28일 전까지 가축 및 정액의 이동상황 추적조사
2. 의사환축이 발생한 날부터 28일 전까지 해당 가축과 직접 접촉한 가축의 소유자·축사관리인·수의사·인공수정사 등이 접촉한 소
3. 의사환축이 발생한 날부터 28일 전까지 발생농장(발생농장 출하 가축을 도

축한 도축장을 포함한다)을 출입한 차량이 방문한 농장의 소
4. 살처분 대상 가축에 대하여 살처분 실시 전에 역학분석을 위한 채혈 등 검사시료의 채취

④ 시·도지사 또는 시장·군수·구청장은 제2항의 조사 또는 검사결과 역학적으로 관련이 있다고 확인된 농장 등에 대하여 별표 5의 기준에 의한 방역조치를 하여야 한다.

⑤ 검역본부장 또는 시·도 가축방역기관장은 역학조사 실시를 위하여 필요하다고 판단되는 때에는 법 제13조제2항의 규정에 따라 설치된 역학조사반내에 "럼피스킨병 역학조사반"을 별도로 설치·운영할 수 있다.

제21조(소독 등 조치) 시장·군수·구청장은 법 제17조의 규정에 따라 발생농장에 대해 청소·세척 및 소독을 다음 각호에 따라 농장주가 이동제한 해제 시까지 실시하도록 하고 이에 대한 지도·점검하며 불가피한 경우에는 소독을 직접 실시할 수 있다.
1. 선별적 살처분 농장
가. 이동제한 해제 시까지 주 2회 이상 주기적인 소독 실시
나. 럼피스킨병 비발생 축사부터 우선실시 후 마지막에 발생 축사를 실시
다. 축사 내부는 비어 있는 우방을 먼저 청소·세척·소독 후 바로 옆 우방에 있는 가축을 세척·소독 후 이송하는 방법으로 모든 우방 및 가축에 대하여 순차적으로 청소·세척 및 소독 실시
라. 축사 외부·기계 장비에 대해 청소· 세척 및 소독 실시
2. 전 두수 살처분 농장
가. 이동제한 해제 시까지 주 1회 이상 주기적인 소독 실시 및 흡혈성 매개체 구제
나. 축사 내·외부에 대한 일제 청소 우선 실시
다. 모든 축사, 울타리, 부착기구 등은 럼피스킨병 유효소독약으로 철저히 세척 후 유기물질, 먼지 등을 제거

라. 정화조, 하수구 및 배수구에 대해 세척 및 소독
마. 사료통, 음료통, 착유장치 등은 모두 비우고 세척
바. 축사 소독은 천장, 벽면, 바닥의 순서로 실시
사. 축사가 흙으로 되어 있는 경우 소독 후 흙을 뒤집은 다음 충분히 젖도록 소독수 살포
아. 축사주위 습지, 초지 및 오염이 가능한 환경에 대해서도 축사 내부와 동일하게 소독 실시
자. 잡초가 많은 경우 제초제 등을 살포하여 제거 후 소독
차. 발생농장의 사료창고, 농기구 보관함, 농장 내 사택 등에 대해 훈증 소독
카. 남은 오염물건(사료, 분뇨, 깔짚 등)은 소독수로 소독 후 포대나 비닐봉지에 담아서 매몰 또는 소각

제22조(관리지역 방역) ① 시·도지사는 관리지역 안의 감수성동물에 대하여 환축의 발생사실이 발표된 날부터 2일 이내에 1차 임상관찰을 완료하고, 이동제한 해제시까지 주기적으로 임상관찰을 하여야 한다.

② 모든 감수성동물의 농장 밖으로의 이동을 금지(다만, 발생농장을 제외한 감수성동물의 지정도축장으로의 출하는 가축방역관의 승인하에 허용)하며, 관리지역 밖의 감수성동물은 관리지역 안으로 반입을 금지한다.

③ 관리지역 안에서 생산된 정액은 관리지역 밖으로의 반출을 금지한다.

④ 관리지역 내 감수성동물 농장에 대한 사료 공급은 지정된 차량을 이용해야 한다.

⑤ 관리지역 내 가축분뇨는 시장·군수·구청장이 허용하는 경우 소독 후 반출을 허용한다.

⑥ 축사 내외부, 운동장, 출입구, 농장 주변 도로에 대해 주기적인 소독을 한다.

⑦ 감수성동물、원유、사료、가축분뇨、식육、도축부산물、동물약품、축산기자재 수송차량의 통행 시 거점소독시설에서 소독 후 통행을 허용한다.

제23조(보호지역 방역) ①시、도지사는 보호지역 안의 감수성동물에 대하여 환축의 발생사실이 발표된 날부터 2일 이내에 1차 임상관찰을 완료하고, 이동제한 해제 시까지 주기적으로 임상관찰을 실시하여야 한다.

② 농림축산식품부장관은 보호지역 안의 감수성동물에 대한 긴급 백신접종을 위하여 가축방역심의회의 자문을 받아 보호지역 관할 시장、군수、구청장에게 긴급 백신접종을 지시할 수 있다.

③ 시、도지사 또는 시장、군수、구청장의 보호지역에 대한 방역조치는 다음 각호와 같다.

1. 모든 감수성동물의 농장 밖으로의 이동금지(제2호의 규정에 의하여 도축되는 가축은 제외한다) 및 보호지역 바깥 가축의 보호지역 안으로 반입금지
2. 이동제한 대상 가축(발생농장 내 사육 중인 가축 제외)을 도축하고자 하는 경우에는 임상관찰을 실시하여 이상이 없는 농장의 가축에 한하여 시、도지사가 지정한 도축장("이하" 지정도축장이라 한다.)에서 도축
3. 보호지역 안에서 생산된 정액의 반출 금지
4. 정액 및 가축 농장、축산관련 작업장의 남은 음식물 쓰레기는 시장、군수、구청장이 허용하는 경우 소독 후 반출 허용
5. 보호지역 내 가축 농장에 사료공급을 위해서 시장、군수、구청장은 지정한 차량을 고정 배차、운용
6. 분뇨는 시장、군수、구청장이 허용하는 경우 소독 후 반출 허용
7. 축사 내、외부, 운동장, 출입구, 농장주변 도로에 대한 주기적인 소독 실시 및 흡혈성 매개체 구제
8. 소、원유、사료、가축분뇨、식육、도축부산물、동물약품、축산기자재 수송차량의 통행 시 거점소독시설에서 소독 후 통행 허용

9. 그 밖의 사람·차량 등에 대한 소독 및 이동통제

④ 보호지역 안의 가축 등에 대한 이동제한 등 방역조치기간은 다음 각호와 같다.
1. 럼피스킨병 긴급 백신접종을 추가로 실시한 경우는 마지막 발생농장의 살처분 대상 동물에 대한 살처분 및 소독조치가 끝나고, 백신접종 후 21일이 경과하고, 최근 발생이 없는 경우 보호지역 내 감수성동물에 대한 임상검사 및 정밀검사를 실시하여 이상이 없다고 판정되는 날까지로 한다.
2. 럼피스킨병 추가 백신접종을 실시하지 아니한 경우에는 마지막 발생농장의 살처분 대상 동물에 대한 살처분 및 소독조치가 끝난 날부터 4주가 지나고, 발생이 없는 경우 보호지역 내 감수성동물에 대한 임상검사 및 정밀검사를 실시하여 이상이 없다고 판정되는 날까지로 한다.

제24조(이동제한 확인 등) 시장·군수·구청장은 법 제19조 제1항의 규정에 따라 발생농장에 대해 이동제한 조치를 명한 경우는 이동제한 해제 시까지 담당 지역의 가축방역관을 지정하고 주 1회 이상 발생농장을 방문토록 하여 사료 공급, 가축분뇨·원유 처리, 그 밖에 축산관련 사람·차량·물품에 대한 방역관리 상황을 점검하고 방역수칙을 준수토록 지도하여야 한다.

제25조(추가 백신접종) ① 농림축산식품부장관은 제17조 제3항에 따라 백신접종을 실시하였으나 럼피스킨병이 발생지역(시·군·구)의 인접 지역으로 전파 우려가 있거나, 여러 지역에서 발생하여 전국적으로 확산 우려가 있다고 판단되는 경우 검역본부장의 건의를 받아 발생지역이나 인접지역 또는 전국의 추가 백신접종을 결정할 수 있다.

② 시·도지사 및 시장·군수·구청장은 추가 백신접종에 대비하여 백신 공급 및 접종 인력 확보 등 필요한 준비를 하여야 하며, 검역본부장의 검사 계획에 따라 관내 농가 등에 대한 백신접종 확인검사를 실시해야 한다.

제5장 백신 미접종 후 환축 발생 시 방역요령

제26조(상황전파 및 대응체계 가동) ① 농림축산식품부장관은 검역본부장으로부터 제15조 제2호에 따른 정밀검사 결과 럼피스킨병 발생보고를 받은 때(럼피스킨병 백신접종 후 1년 이상 경과 한 경우)에는 육상동물위생규약(Terrestrial Animal Health Code)에 따라 세계동물보건기구(WOAH)에 럼피스킨병 발생 사실을 알리고 법 제19조의2 규정에 따라 전국 일시 이동중지 명령을 하여 전국의 감수성동물 사육농장, 축산관련 작업장 등에 48시간 이내(법 제19조의2 제2항 단서에 따라 필요시 연장)에 가축、 사람、차량、물품 등의 출입을 일시 중지토록 조치하여야 하며, 행정안전부、기획재정부、국방부、외교부、경찰청 등 중앙 행정 기관의 장에게 럼피스킨병 방역 추진을 위해 필요한 협조 사항을 요청하여야 한다.

② 검역본부장, 시、도지사, 시장、군수、구청장은 제1항의 전국 일시 이동중지 명령이 시행되면 모든 소 사육농장, 축산관련 작업장 경영자, 축산관련 종사자 등에 이를 전파하고 전국 일시 이동중지명령기간 동안 소 사육농장, 축산관련 작업장 등에 가축、사람、차량、물품 등이 출입하지 않도록 지도、점검을 실시하여야 한다.

③ 제1항의 전국 일시 이동중지명령기간 내에 농림축산식품부장관은 긴급 백신접종의 필요 여부를 검토하여 필요하다고 판단되는 경우 지체없이 백신접종 계획을 마련하여야 한다. 검역본부장은 백신 공급계획을 마련하여 농림축산식품부장관에게 보고하고, 발생농장 등에 대한 역학조사 및 방역조치 등을 실시하여야 한다.

④ 농림축산식품부장관은 럼피스킨병 방역대책본부(본부장 : 장관)와 상황실을, 검역본부장은 상황실을 가동하고 법 제9조의2의 규정에 따라 발생 시、군、구

에 가축전염병기동방역기구를 파견하여야 한다.

⑤ 모든 시·도 및 시·군·구는 럼피스킨병 방역대책본부(본부장 : 기관장)와 상황실을, 시·도 가축방역기관은 상황실을 가동하여 신속하고 효율적인 현장 방역이 이루어지도록 하여야 한다.

⑥ 농림축산식품부장관은 살처분 범위나 긴급 백신접종 실시방안 등 방역조치 사항에 대해 필요하다고 판단되는 경우는 법 제4조의 규정에 따라 가축방역심의회를 개최할 수 있다.

⑦ 농림축산식품부장관, 검역본부장, 시·도지사, 시장·군수·구청장은 축산농가, 축산관련 단체(업계) 및 소비자단체 등에 방역상황·정부 방역대책 및 축산물의 안전성 등에 관한 홍보를 하여야 한다.

제27조(이동제한 등 조치) ① 방역지역을 관할하는 시장·군수·구청장은 방역지역을 설정하여 법 제19조 제1항의 규정에 따라 이동제한 등 필요한 차단 방역조치를 취하여야 한다.

② 방역지역 관할 시·도지사는 이동통제초소의 운영, 가축의 살처분·사체처리, 소독 등 방역조치의 원활한 시행을 위해 시·도경찰청 및 방역지역 관할 군부대에 방역인력의 지원을 요청하여야 한다.

③ 방역지역 관할 시장·군수·구청장은 다음 각호의 조치를 하여야 한다.
1. 발생농장 입구의 눈에 잘 띄는 장소에 럼피스킨병 발생사실과 출입금지를 기재한 별표 2의 출입금지 표지판의 설치
2. 발생지·보호지역 및 예찰지역 안에서 사육되는 감수성동물의 소유자등에 대하여 당해 동물의 격리·억류 또는 이동제한 명령
3. 발생농장의 관리자, 관리자의 동거가족 및 발생농장 가축의 소유자등에게 고용된 자 등에 대하여 살처분이 완료된 날부터 14일이 경과 될 때까지 외출

을 통제하고, 부득이한 경우에 한하여 가축방역관의 통제하에 세척·소독 등 방역조치를 실시한 후 외출 허용
4. 발생지, 보호지역 및 예찰지역이 구분되는 각 도로망에 이동제한 통제초소 및 소독시설을 설치·운영하고, 사람·가축 또는 차량에 대하여 교통차단, 출입통제, 소독 등 차단방역을 실시
5. 발생지에 거주하는 사람에 대하여는 외출을 자제토록 하고 외출이 불가피한 경우 소독 등 방역조치 후 외출을 허용
6. 의사환축 발생을 신고한 수의사, 인공수정사, 기타 축산관련 종사자에 대해서는 럼피스킨병 확진판정을 받은 날로부터 14일간 가축사육농장 방문을 금지(진료 포함)하고 감수성동물과 접촉하지 않도록 조치(단, 방역조치 후 음성으로 확인되면 이동제한을 해제할 수 있으며, 차량은 세척·소독 후 운행하여야 한다.)

④ 발생농장(역학관련 농장을 포함)을 관할하는 시·도지사는 KAHIS에서 발생농장의 가축 이동 및 출하 정보를 파악하여 관할 시장·군수·구청장이 필요한 방역조치를 하도록 조치하여야 한다.

⑤ 럼피스킨병 발생 시 전국 시장·군수·구청장은 법 제27조의 규정에 따라 가축 시장을 폐쇄한다.

제28조(살처분 등 조치) ① 시장·군수·구청장은 법 제20조에 따라 다음 각 호에 해당하는 감수성동물에 대하여는 살처분을 명하여야 한다. 다만, 제2호부터 제3호까지에 해당하는 경우에서 해당 지역의 축산업 형태, 지형적 여건, 야생동물 서식 실태, 계절적 요인 또는 역학적 특성 등 위험도(별표 6)를 고려하여 지방 가축방역심의회 위원, 시·도 관계관, 시·군·구 관계관 등과 살처분 여부를 결정하여 이를 시행하여야 하며, 필요한 경우에는 검역본부 관계관의 자문을 받을 수 있다.
1. 발생농장에서 사육되고 있는 감수성동물
2. 관리지역 및 보호지역 안에서 사육되고 있는 감수성동물

3. 역학적 관련성이 있는 발생농장 소유자등이 다른 지역에서 사육하고 있는 감수성동물

② 검역본부장 또는 시·도지사는 제1항에 따른 살처분 결정 시 지방 가축방역심의회, 시·도 관계관, 시·군·구 관계관 및 검역본부 담당관과 관리·보호지역 안에서 사육되고 있는 감수성동물 살처분의 범위에 대하여 협의할 수 있으며, 지방 가축방역심의회 결과에 따라 감수성동물의 살처분을 축소하여 실시하거나 제외하기로 한 경우 이를 농림축산식품부장관에게 건의하여야 한다.

③ 농림축산식품부장관은 검역본부장 또는 시·도지사로부터 제2항의 건의를 받은 때에는 현지실사단을 파견하여 평가를 하도록 하고 현지실사단의 의견을 수렴하여 건의사항의 시행 여부 등을 결정하여야 한다. 다만, 필요한 경우에는 가축방역심의회의 자문을 받을 수 있다.

④ 시장·군수·구청장은 다음 각호에 해당하는 감수성동물에 대하여는 검역본부장의 기술자문을 받아 살처분 여부를 결정하여 이를 시행하여야 한다.
1. 환축을 진료하거나 인공수정한 수의사·인공수정사 또는 환축의 소유자등이 발생일 7일 전부터 접촉한 감수성동물
2. 환축의 사체를 사료로 급여한 감수성동물
3. 그 밖에 역학적으로 럼피스킨병의 감염이 의심되는 감수성동물

⑤ 발생농장에서 죽은 가축과 살처분한 가축은 가축방역관의 감독하에 농장 내 또는 농장 인근에서 FRP 저장조, 랜더링, 소각 등 친환경적으로 처리하고, 이들 방법으로 사체 처리가 곤란할 경우는 매몰하되, 살처분 대상 가축을 살아 있는 상태 또는 사체 상태로 처리장소로 운반하는 경우는 덮개가 있고 누수를 방지할 수 있는 차량으로 운반하여야 하고, 운반차량은 운반 즉시 차량 내부를 럼피스킨병에 유효한 소독약으로 소독하여야 한다.

⑥ 시장·군수·구청장은 발생농장의 가축에 대한 살처분 및 사체처리 작업에 참여한 사람 또는 사용된 장비에 대하여 발생지에서 목욕(세척)·소독 등 필요

한 방역조치를 한 후 다른 지역으로 이동하도록 하여야 하고, 해당 작업을 마친 후 7일이 경과 할 때까지 소를 사육하는 축사 및 축산관련 시설에의 출입을 금지토록 조치하여야 한다. 다만, 살처분 및 사체처리 작업을 위하여 다른 발생농장을 출입하는 경우에는 그러하지 아니하다.

⑦ 시장·군수·구청장은 가축의 살처분 및 사체처리 작업에 참여한 사람과 동원한 장비에 대하여 인적사항(이름, 주소, 전화번호 등)과 장비내역을 작성하여 소독·예찰 등 사후 방역관리를 실시하여야 한다.

⑧ 럼피스킨병 긴급백신을 실시한 경우는 “제4장 백신접종 실시 후 환축 발생 시 방역요령”에 준하여 살처분 조치를 할 수 있다.

제29조(역학조사) ① 의사환축 및 발생농장에 대한 1차 역학조사는 관할 시·도 가축방역기관장이 실시하고, 발생농장에 대한 2차 역학조사는 검역본부장이 실시하며, 긴급을 요하는 경우에는 검역본부장 및 시·도 가축방역기관장이 공동으로 실시하여야 한다.
② 제1항에 따른 1차 역학조사반은 농가 내부 및 차량 등의 다양한 오염원 시료를 확보하여 발생원인 규명을 위한 역학분석 및 살처분 보상비 평가를 위한 증거자료로 활용할 수 있도록 조치하고, 1차 역학조사 내용을 검역본부장, 관할 시·도지사 및 시장·군수·구청장에게 전달하여 신속한 방역조치가 이루어지도록 하여야 한다.
③ 역학조사는 다음 각호와 같이 실시하고, 정밀검사 또는 역학조사 결과 추가적인 조사가 필요한 경우 이를 확대하여 실시할 수 있다.
1. 의사환축이 발생한 날부터 28일 전까지 가축 및 정액의 이동상황 추적조사
2. 의사환축이 발생한 날부터 28일 전까지 해당 가축과 직접 접촉한 가축의 소유자·축사관리인·수의사·인공수정사 등이 접촉한 소
3. 의사환축이 발생한 날부터 28일 전까지 발생농장(발생농장 출하 가축을 도축한 도축장을 포함한다)을 출입한 차량이 방문한 농장의 소
4. 살처분 대상 가축에 대하여 살처분 실시 전에 역학분석을 위한 채혈 등 검

사시료의 채취

④ 시·도지사 또는 시장·군수·구청장은 제2항의 조사 또는 검사결과 역학적으로 관련이 있다고 확인된 농장 등에 대하여 별표 5의 기준에 의한 방역조치를 하여야 한다.

⑤ 검역본부장 또는 시·도 가축방역기관장은 역학조사 실시를 위하여 필요하다고 판단되는 때에는 법 제13조 제2항의 규정에 따라 설치된 역학조사반내에 "럼피스킨병 역학조사반"을 별도로 설치·운영할 수 있다.

제30조(소독 등 조치) ① 시장·군수·구청장, 발생농장·발생지 감수성동물의 소유자등은 다음 각호의 시설물 등에 대하여 럼피스킨병에 유효한 소독약을 이용하여 수시로 소독을 실시해야 하고, 그 밖의 소독방법은 법 시행규칙 제20조의 규정을 준용한다.
1. 제10조 제1항 제1호의 규정에 따라 설치된 발생농장의 출입구 통제소
2. 환축 또는 의사환축과 접촉하였거나 접촉하였다고 의심되는 기구, 피복 등(이 경우 소독약을 이용한 소독을 열처리 소독으로 대체할 수 있다.)
3. 발생농장의 축사·관리사·창고·숙소·분뇨처리시설·하수구, 발생지 안의 축사, 주변 도로 등 오염 우려가 있는 장소
4. 발생지 밖으로 외출하는 사람

② 시장·군수·구청장, 발생농장·발생지 감수성동물의 소유자등은 발생지의 유해동물과 럼피스킨병 매개체를 구제하여야 한다.

③ 발생농장 안의 오염 또는 오염의심 물건에 대한 세척·소독·소각 또는 매몰은 다음 각호와 같이 구분한다.
1. 발생농장 가축의 생산물(원유·정액·털·가죽 등) : 소각 또는 매몰
2. 가축의 분뇨 : 소독실시 후 이동제한 해제 시까지 농장에서 보관. 다만, 럼피스킨병 발생 이전에 생산된 퇴비(완제품 : 포장상태)의 경우 관계 공무원의

지도·감독하에 외부 소독 후 외부로 반출 가능
3. 배합사료·조사료·깔짚 등 : 소각 또는 매몰. 다만, 비닐 등으로 완전하게 밀봉되어 있는 조사료(위험·경계·관리지역 내 축산농가에서 포장한 것은 제외)는 제외
4. 차량·축산기자재·장비 등 : 세척 및 소독
5. 가축의 진료에 사용한 약품, 백신류 : 소각 또는 매몰

제31조(관리·보호지역 방역) ① 시·도지사는 관리·보호지역 안의 감수성동물에 대하여 환축 발생사실이 발표된 날부터 2일이내에 1차 임상관찰을 완료하고, 이동제한 해제시까지 주기적으로 임상관찰을 실시하여야 한다.

② 농림축산식품부장관은 관리·보호지역 안의 소에 대한 긴급 백신접종을 위하여 가축방역심의회의 자문을 받아 위험지역 관할 시장·군수·구청장에게 긴급 백신접종 실시를 명령할 수 있다.

③ 시·도지사 또는 시장·군수·구청장의 관리지역에 대한 방역조치는 다음 각호와 같다.
1. 모든 감수성동물의 농장 밖으로의 이동금지(제3호의 규정에 의하여 도태 또는 수매되는 가축은 제외한다) 및 관리지역 밖의 소의 관리지역 안으로 반입금지
2. 도축장의 폐쇄. 다만, 관리지역 안의 방역과 수급을 목적으로 도태 또는 수매한 가축을 도축하기 위한 지정도축장은 제외
3. 이동제한 대상 가축을 도태 또는 수매하고자 하는 경우에는 발생농장의 가축에 대한 살처분이 완료된 날부터 14일이 경과한 후 임상관찰 및 혈청검사를 실시하여 이상이 없는 농장의 가축에 한하여 지정도축장에서 도축
4. 지정도축장에서 도축되는 가축의 내장, 장기, 머리, 뼈, 피 등은 소독·폐기 또는 열처리 정제(랜더링) 처리. 다만, 도축·가공장에서 열처리(내부 온도 70℃ 이상에서 30분간 가열)하는 경우 유통을 허용하고, 예냉·산도 처리된 정육에 한하여 예찰지역 해제일부터 유통 허용

5. 집유된 원유

가. 예찰지역 해제일까지는 고정차량을 이용하여 집유하고 고온단시간살균법(72~75℃에서 15~20초)으로 2회 이상 연속하여 처리하거나 초고온순간처리법(135℃이상에서 1초 이상)과 그 이상의 효과가 있는 방법으로 처리한 후 시유 또는 유제품 가공원료로 사용가능.

나. 예찰지역 해제일부터 이동제한 해제일까지는 방역조치 이전과 같은 유통을 허용하되, 소의 사료로 이용은 금지

6. 소의 자연교배 및 인공수정 금지. 다만, 이동제한 해제일부터는 럼피스킨병에 오염되지 아니한 방역지역 밖에서 생산된 정액을 이용한 인공수정 허용

7. 정액 및 소 농장·축산관련 작업장의 남은 음식물 쓰레기는 관리지역 밖으로 반출을 금지하고, 사료공장 또는 사료환적장에 있는 사료는 시장·군수·구청장이 지정한 차량에 한하여 소독 후 운반을 허용하고, 분뇨는 시장·군수·구청장이 허용하는 경우 소독 후 반출 허용

8. 축사 내·외부, 운동장, 출입구, 농장주변 도로에 대한 주기적인 소독실시 및 럼피스킨병 매개체 구제

9. 가축·원유·사료·가축분뇨·식육·도축부산물·동물약품·축산기자재 수송차량의 통행차단. 다만, 제3호의 규정에 따라 가축을 지정도축장으로 출하하기 위한 차량 또는 보호지역 고정배치 차량 등으로서 가축방역관의 통행허가를 받은 차량은 소독 후 통행 허용

10. 그 밖의 사람·차량 등에 대한 소독 및 이동통제

④ 시·도지사 또는 시장·군수·구청장의 보호지역에 대한 방역조치는 다음 각호와 같다.

1. 모든 감수성동물의 농장 밖으로의 이동금지(제3호의 규정에 의하여 도태 또는 수매되는 가축은 제외한다) 및 보호지역 밖의 소의 보호지역 안으로 반입금지

2. 도축장의 폐쇄. 다만, 보호지역 안의 방역과 수급을 목적으로 도태 또는 수매한 가축을 도축하기 위한 지정도축장은 제외

3. 이동제한 대상 가축을 도태 또는 수매하고자 하는 경우에는 발생농장의 가축에 대한 살처분이 완료된 날부터 14일이 경과한 후 임상관찰 및 혈청검사를

실시하여 이상이 없는 농장의 가축에 한하여 지정도축장에서 도축
4. 지정도축장에서 도축되는 가축의 내장, 장기, 머리, 뼈, 피 등은 소독ㆍ폐기 또는 열처리 정제(랜더링) 처리. 다만, 도축ㆍ가공장에서 열처리(내부 온도 70℃ 이상에서 30분간 가열)하는 경우 유통을 허용하고, 예냉ㆍ산도 처리된 정육에 한하여 예찰지역 해제일부터 유통 허용
5. 집유된 원유
 가. 예찰지역 해제일까지는 고정차량을 이용하여 집유하고 고온단시간살균법(72~75℃에서 15~20초)으로 2회 이상 연속하여 처리하거나 초고온순간처리법(135℃이상에서 1초 이상)과 그 이상의 효과가 있는 방법으로 처리한 후 시유 또는 유제품 가공원료로 사용가능.
 나. 예찰지역 해제일부터 이동제한 해제일까지는 방역조치 이전과 같은 유통을 허용하되, 소의 사료로 이용은 금지
6. 소의 자연교배 및 인공수정 금지. 다만, 이동제한 해제일부터는 럼피스킨병에 오염되지 아니한 방역지역 밖에서 생산된 정액을 이용한 인공수정 허용
7. 정액 및 소 농장ㆍ축산관련 작업장의 남은 음식물 쓰레기는 보호지역 밖으로 반출을 금지하고, 사료공장 또는 사료환적장에 있는 사료는 시장ㆍ군수ㆍ구청장이 지정한 차량에 한하여 소독 후 운반을 허용하고, 분뇨는 시장ㆍ군수ㆍ구청장이 허용하는 경우 소독 후 반출 허용
8. 축사 내ㆍ외부, 운동장, 출입구, 농장주변 도로에 대한 주기적인 소독실시 및 럼피스킨병 매개체 구제
9. 가축ㆍ원유ㆍ사료ㆍ가축분뇨ㆍ식육ㆍ도축부산물ㆍ동물약품ㆍ축산기자재 수송차량의 통행차단. 다만, 제3호의 규정에 따라 가축을 지정도축장으로 출하하기 위한 차량 또는 보호지역 고정배치 차량 등으로서 가축방역관의 통행허가를 받은 차량은 소독 후 통행 허용
10. 그 밖의 사람ㆍ차량 등에 대한 소독 및 이동통제

⑤ 관리ㆍ보호지역 안의 가축 등에 대한 이동제한 등 방역조치기간은 다음 각 호와 같다. 이 경우 관리ㆍ보호지역의 방역조치기간은 예찰지역의 방역조치기간보다 같거나 짧아서는 아니된다.
1. 럼피스킨병 긴급백신을 실시한 경우는 백신접종 후 3주 경과하고, 최근 3주

간 발생이 없는 경우 예찰지역에 대한 이동제한이 해제되고 난 후, 관리·보호지역 내의 감수성동물에 대한 임상검사 및 정밀검사를 실시하여 이상이 없다고 판정되는 날까지로 한다.
2. 럼피스킨병 백신접종을 실시하지 아니한 경우에는 발생농장의 살처분 대상 가축(발생농장을 중심으로 반경 500미터 내외의 감수성동물을 살처분한 때에는 그 가축을 포함한다)에 대한 살처분이 끝난 날부터 4주가 지나고 예찰지역의 이동제한이 해제된 후 관리·보호지역 내 감수성동물에 대한 임상검사 및 정밀검사 결과 이상이 없다고 판정된 날까지로 한다.
3. 제1호 및 제2호의 규정에 의한 정밀검사의 실시 횟수는 1회로 한다. 다만, 검역본부장은 정밀검사 결과 이상이 있거나 역학적으로 추가 정밀검사가 필요하다고 판단되는 때에는 재검사를 실시할 수 있다

제32조(예찰지역 방역) ① 시장·군수·구청장은 예찰지역 안의 감수성동물에 대하여 환축의 발생사실이 공표된 날부터 2일 이내에 1차 임상관찰(전화예찰 등)을 완료하고, 이동제한 해제시까지 주 1~2회 이상 임상관찰(전화예찰 등)을 실시하여야 한다.

② 농림축산식품부장관은 예찰지역 안의 감수성동물에 대한 긴급 백신접종을 위하여 가축방역심의회의 자문을 받아 예찰지역 관할 시장·군수·구청장에게 긴급 백신접종 실시를 명령할 수 있다.

③ 시·도지사 또는 시장·군수·구청장의 예찰지역에 대한 방역조치는 다음 각호와 같다.
1. 모든 감염 가능 가축의 농장 밖으로의 이동금지(제3호의 규정에 의하여 도태 또는 수매되는 가축은 제외한다) 및 예찰지역 밖 감수성동물의 예찰지역 안으로 반입금지. 다만, 자우전문생산농장의 자우 등 이동제한기간 중 과밀사육이 우려되는 가축에 대하여는 발생농장의 살처분이 완료된 날부터 14일이 경과하고 임상관찰 및 혈청검사 결과 이상이 없는 경우에 한하여 소독 등 필요한 방역조치를 한 후 예찰지역 안의 비어 있는 축사로의 이동 허용

2. 도축장의 폐쇄. 다만, 예찰지역 안 가축의 방역과 수급을 목적으로 도태 또는 수매한 가축을 도축하는 지정도축장은 제외
3. 이동제한 대상 가축을 도태 또는 수매하고자 하는 경우는 발생농장의 가축에 대한 살처분이 완료된 날부터 14일이 경과한 후 임상관찰 결과 이상이 없는 농장의 가축에 한하여 지정도축장에서 도축
4. 지정도축장에서 도축되는 가축의 내장, 장기, 머리, 뼈, 피 등 도축부산물은 소독·폐기 또는 열처리 정제(랜더링) 처리하고 정육은 예냉·산도 처리된 경우에 한하여 유통 허용. 다만, 도축부산물 중 도축·가공장에서 열처리(내부온도 70℃ 이상에서 30분간 가열)하는 경우에 한하여 유통 허용
5. 집유된 원유는 감수성동물의 사료 이용을 금지
6. 감수성동물의 자연교배는 금지하며, 인공수정은 럼피스킨병에 오염되지 아니한 방역지역 밖에서 생산된 정액을 이용하여 가축방역관의 감독하에 실시하는 조건으로 허용
7. 사료·가축분뇨는 예찰지역 밖으로 반출시 소독실시
8. 축사 내·외부, 운동장, 출입구, 농장 주변 도로에 대한 주기적인 소독실시 및 럼피스킨병 매개체 구제
9. 가축 수송차량의 통행금지. 다만, 지정도축장 출하 차량은 소독 후 통행 허용
10. 그 밖의 차량은 소독 후 통행 허용
11. 예찰지역 내에서 생산되는 정액은 외부로의 반출을 금지

④ 예찰지역 내의 가축 등에 대한 이동제한 등 방역조치기간은 다음 각호와 같다.
1. 럼피스킨병 긴급백신을 실시한 경우는 백신접종 후 3주가 경과하고, 최근 3주간 발생이 없는 경우 예찰지역 내의 감수성동물에 대한 임상검사 및 정밀검사를 실시하여 이상이 없다고 판정되는 날까지로 한다.
2. 럼피스킨병 긴급백신을 실시하지 아니한 경우에는 발생농장의 살처분 대상가축(발생농장을 중심으로 반경 500미터 내외의 감수성동물까지 살처분한 때에는 그 가축을 포함한다)의 마지막 살처분이 끝난 날부터 4주가 지난 후 예찰지역 내의 감수성동물에 대한 임상검사 및 정밀검사 결과 이상이 없다고 판

정된 날까지로 한다.

⑤ 제4항에 따른 정밀검사의 실시 횟수는 1회로 한다. 다만, 검역본부장은 정밀검사 결과 이상이 있거나 역학적으로 추가 정밀검사가 필요하다고 판단되는 때에는 재검사를 실시할 수 있다.

제33조(권역에 대한 방역) ① 농식품부장관 또는 시·도지사는 법 제19조 제2항의 규정에 따라 럼피스킨병이 발생하여 전파·확산이 우려되는 경우, 권역에 대한 적용지역, 기간, 대상 등을 정하여 방역조치를 명할 수 있다.

② 시·도지사 또는 시장·군수·구청장의 권역에 대한 방역조치는 다음 각호와 같다.
1. 발생권역에서 비발생권역으로 가축 또는 오염우려 물품의 이동을 제한(다만, 권역 내 소의 이동은 가능하다)
2. 권역 내 축사 및 운동장, 가축집합시설 등 축산관계시설에 대한 소독 강화 및 럼피스킨병 매개체 구제
3. 럼피스킨병 발생 사실을 공표한 날로부터 5일 이내에 권역 내 소에 대한 임상관찰(전화예찰 등)을 완료하고, 주 1~2회 이상 임상관찰(전화예찰 등)을 실시
4. 검역본부의 검사계획에 따라 감수성동물 모니터링 정밀검사
5. 권역 내에서 출하된 가축의 도축검사 강화

제6장 백신접종 실시 및 백신 미접종 유형 공통 조치사항

제34조(축사 외 장소에서 발생 시 조치) ① 시·도지사는 도축장이나 가축시장 등(이하 "도축장 등"이라 한다)에서 럼피스킨병 의심증상을 나타내는 감수성동물이 발견된 때에는 즉시 가축의 도축 또는 거래를 전면 중단하고, 의심가축과

접촉하였거나 접촉한 것으로 의심되는 차량 및 사람에 대하여 환축여부 확인 시까지 이동을 중단하도록 한다.

② 시·도지사는 제1항의 가축 및 같이 계류된 가축에 대하여는 검역검사 본부의 병성감정 결과가 나올 때까지 당해 도축장 등의 가축 계류시설 안에 계류하도록 하여야 한다.

③ 시·도지사는 제1항의 가축을 출하한 농장에 대하여도 이 요령에 따라 방역조치를 하여야 한다.

④ 제1항의 가축이 환축으로 확인된 때에는 당해 도축장 등을 관할하는 시·도지사의 도축장 등에 대한 방역조치는 다음 각호와 같다. 이 경우 환축의 출하농장에 대하여도 이 요령에 따른 방역조치를 하여야 한다.
1. 도축장 등 안의 가축과의 접촉으로 오염이 의심되는 시설, 장비, 차량 등에 대한 소독 및 도축장 주변의 흡혈성 매개체 구제
2. 당해 도축장 등은 폐쇄조치. 다만, 폐쇄기간은 검역본부장의 기술적 자문을 받아 시·도지사가 정함
3. 가축방역관은 도축장 등에서 환축과 접촉한 사람, 차량에 대하여 소독을 실시 한 후 역학조사가 가능하도록 인적사항의 기록유지
4. 도축장 등에 계류된 소 전체에 대한 살처분 조치. 다만, 백신접종 실시 후 럼피스킨병이 발생한 경우 해당 환축만 살처분 조치
5. 백신 미접종 후 럼피스킨병이 발생한 경우, 환축 발견 이전에 환축과 같이 계류되었던 상태에서 이미 도축되어 보관되어있는 도체 및 도축부산물은 폐기 조치 하고 도축장 밖으로 출하된 지육(도축부산물을 포함한다)에 대하여도 회수·폐기 조치. 다만, 백신접종 실시 후 럼피스킨병이 발생한 경우는 지육은 예냉·산도 처리 후 유통을 허용하고 도축부산물은 소독·폐기 또는 열처리 정제(랜더링) 처리

제35조(럼피스킨병방역대책본부) ① 농림축산식품부, 시·도, 시·군·구의 방

역대책본부장과 검역본부, 시·도 가축방역기관의 상황실장은 유기적으로 협조하여 럼피스킨병 방역에 공동노력을 하여야 한다.

② 기관별 방역대책본부 및 상황실에는 상황반·행정 지원반·유통감시반·수급대책반·역학조사반·정밀진단반 등을 두어 운영하되, 기관별 업무 역할 및 인원 등을 고려하여 그 조직을 확대 또는 축소할 수 있다.

제7장 종식 후속대책 추진

제36조(종식 선언) 농림축산식품부장관은 모든 방역지역에서 이동제한 등 방역조치가 해제된 때에는 럼피스킨병 발생의 종식을 선언할 수 있다.

제37조(종식후속대책) ① 농림축산식품부장관은 방역지역에 대한 이동제한 등 방역조치를 해제한 후 시행하여야 하는 럼피스킨병 백신접종 가축의 관리, 소의 임상·정밀검사, 럼피스킨병 발생 시·군·구 특별관리방안 등 사후관리대책을 수립하여 시·도지사 및 검역본부장에게 시달하여야 한다.

② 발생지 관할 시·도지사와 검역본부장은 제1항의 사후관리대책을 시행하기 위한 세부추진계획을 수립하여 추진하여야 한다.

제38조(가축의 재사육) ① 제19조에 의하여 백신접종을 실시한 환축이 살처분된 축사 안에 소를 다시 사육할 목적으로 입식 할 경우(선별적 살처분농장 포함)에는 이동제한 해제 후 일주일 이내 시장·군수·구청장과 시·도 가축방역기관 합동으로 청소·소독·세척 등 점검을 실시하고, 이상이 없는 경우 점검일로부터 30일 이후 재점검(선별적 살처분농장은 임상검사 추가실시) 및 환경검사 결과 음성인 경우 검역본부장의 승인을 거쳐 입식이 가능하다.(다만, 보

완이 필요한 농가는 재점검을 실시하며, 이동제한 해제 등을 위한 환경검사에서 음성으로 확인된 예방적살처분 농장에 대해서는 시장·군수·구청장과 시·도 가축방역기관 합동점검만 실시)

② 제28조에 의하여 백신 미접종 환축이 살처분된 축사 안에 소를 다시 사육할 목적으로 입식 할 수 있는 시기는 다음 각호와 같다. 다만 긴급백신을 실시한 경우 제1항의 규정을 따른다.

1. 발생농장 : 관리지역에 대한 이동제한 해제 후 일주일이 경과하고 농장의 청소·세척 및 소독이 완료된 후 시장·군수·구청장(1차 점검)과 검역본부(2차 점검)의 점검에서 이상이 없어야 하며, 별표 7의 입식시험실시요령에 따라 60일간 실시하는 검역본부장의 입식승인을 받은 경우

2. 관리지역 : 제1호의 규정에 따라 발생농장에서의 입식시험이 이상 없는 경우(다만, 발생농장이 폐업하거나 발생농장의 입식시험이 이동제한 해제 후 30일 이상 지연되는 경우에는 가축을 재사육하려는 농장에 대한 1차점검과 2차 점검에서 이상이 없고 청소·세척·소독 및 환경검사 결과 음성으로 판정될 경우)

3. 제1호 및 제2호 외의 지역 : 관리·보호지역에 대한 이동제한 해제일부터 30일이 경과한 경우. 다만, 발생농장 중심 반경 3km 내외지역의 가축을 살처분하는 과정에서 항체·항원 양성축이 발생한 농장에 대해서는 제1호의 규정을 준용하되 그 외의 농장에 대해서는 럼피스킨병 발생상황 및 오염수준 등을 감안하여 검역본부장의 기술자문을 받아 입식 시기 결정

③ 제1, 2항의 규정에 따라 가축을 재입식 한 후 시장·군수·구청장은 60일이 경과 할 때까지 주 1회 이상 임상검사를 하여야 한다.

제39조(재검토기한) 농림축산식품부장관은 이 고시에 대하여 「훈령·예규 등의 발령 및 관리에 관한 규정」에 따라 2024년 0월 0일 기준으로 매 3년이 되는 시점(매 3년째의 0월 00일까지를 말한다)마다 그 타당성을 검토하여 개선 등의 조치를 하여야 한다.

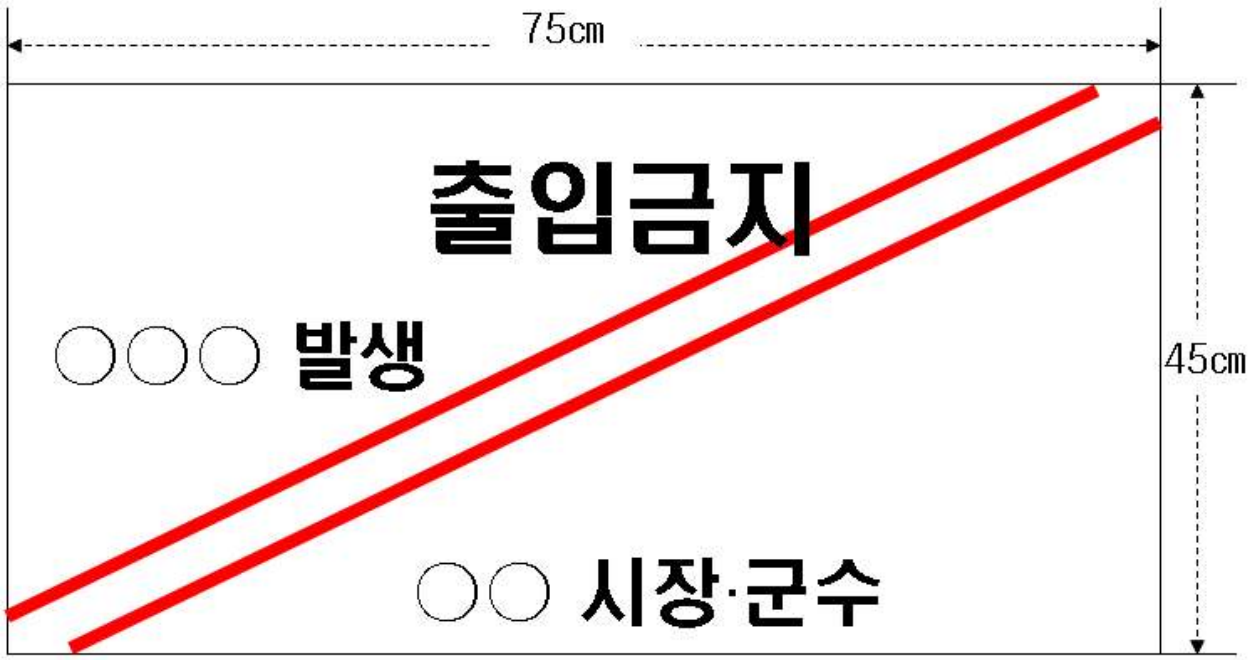
[별표 1]

검사시료 채취 준비물 (제9조, 제13조 관련)

집 행 용 구	수 량	비 고
부검용칼	2개	
가위	2개	
핀셑	2개	
주사기(안락사용)	2개	
체온계	1개	
프라스틱 백(90×90㎝)	6개	
프라스틱 백(50×25㎝)	6개	
장화	1컬레	
손잡이가 긴 솔	1개	
양동이	1개	
소독약	2리터	
고무장갑	2짝	
1회용 수술장갑	6짝	
위생작업복	2벌	
혈액채취병	24개	
혈액채취병(EDTA 함유)	6개	
혈액채취병(Sodium citrate 함유)	6개	
1회용 주사기 20㎖	10개	
1회용 주사기 5㎖	10개	
멸균면봉	10개	
내용물이 새지않도록 고무가 들어 있고 나선형의 두껑이 있는 25cc 병	10개	
내용물이 새지 않도록 고무가 들어 있고 나선형의 두껑이 있는 알미늄 깡통	10개	
냉장박스	1개	
얼음팩	2개	
바이러스 수송용 배지 또는 조직배양배지	500 ml	

[별표 2]

출입금지 표지판 (제10조, 제18조, 제27조 관련)



(흰생 바탕에 검정글씨, 붉은 사선 2줄)

[별표 3]

검사시료 채취 및 송부요령 (제13조 관련)

1. 럼피스킨병 검사를 위한 농장의 검사시료 채취 기준은 다음과 같다.

 가. 조직 시료의 경우 전혈(EDTA 처리), 조직(비장, 림프절, 필요시 편도, 간, 심장, 폐, 신장 등의 실질 장기)

 나. 정밀검사의 경우 전혈과 타액(개체당 7ml 이상)

 ※ 발생 우사의 경우 필요시 조정 가능

2. 검사시료 채취대상은 동일 농장 내 동거축에 대해 반드시 철저한 임상검사를 실시한 후 럼피스킨병이 의심되는 개체를 선정하여 시료채취를 실시하도록 한다.

3. 시료 송부시 다음 사항을 기재한 시료채취내역서(별지 제3호 서식)를 반드시 첨부하여야 하며, 시료가 운송 중 누출되거나 파손되지 않도록 적절히 밀폐 포장하여야 한다.

 - 농장명, 축주명, 농장주소, 연락처, 시료채취 연월일, 시료채취 시 임상증상 유무(고열, 폐사, 사료섭취량 감소, 유량저하, 수포, 궤양 등)

4. 송부처 : 농림축산검역본부(해외전염병과) 또는 시·도 가축방역기관

[별표 4]

가축 등에 대한 일시 이동중지(Standstill) 조치 요령

1. 일시 이동중지(Standstill) 정의

럼피스킨병이 국내에서 발생 시 확산 방지를 위하여 전국(또는 지역별)의 모든 소 농장 및 관련 작업장 등에 가축·사람·차량·물품 등의 출입을 일시 중지(48시간 이내 - 필요 시 연장)하는 조치를 말한다.

2. 일시 이동중지(Standstill) 발령권자, 시점 및 적용범위

가. 발령권자 및 시점 : 농림축산식품부장관 또는 시·도지사는 럼피스킨병 발생상황에 따라 Standstill을 발령하며, 발령시점은 다음과 같다.

1) 최초 발생 시(의사환축 발생 포함)

2) 신규 시·도 단위에서 발생 시

3) 가축방역심의회에서 결정 시 등

나. 적용 범위 : 최초 발생 시(의사환축 발생 포함)에는 전국 단위로 발령하고, 이후부터는 가축방역심의회에서 발생농장이 소재한 시·도와 사람·차량 등의 역학관련 지역 등을 고려하여 결정한다.

1) 다만, 시·도지사는 일시 이동중지 명령 시 지방 가축방역심의회를 통해 적용 범위 및 시간 등을 논의하여야 하며, 농림축산식품부장관과 협의를 거쳐 명령을 발령하여야 한다.

다. 가목 및 나목에 따른 일시 이동중지 명령 발령 시점 및 적용범위는 방역상황에 따라 조정될 수 있다.

3. 일시 이동중지(Standstill) 기간

발령시점으로부터 48시간 이내의 범위에서 유지하되 필요 시 1회 48시간 이내로 연장할 수 있다.

4. 일시 이동중지(Standstill) 적용 대상

가. 전국 또는 지역별 모든 소 농장에 가축·사람·차량의 출입금지

나. 전국 또는 지역별 모든 소 관련 작업장에 사람, 차량, 물품 등 이동 금지

5. 일시 이동중지(Standstill) 전파

가. 발령권자는 관계부처, 지자체, 관련단체 및 협회에 공문조치 및 언론 등

을 통해 발표한다.

1) 발령권자는「가축전염병 예방법」제19조의2의 규정에 따라 럼피스킨병의 전국적 확산을 방지하기 위하여 전국 또는 지역의 "가축·시설출입차량 및 축산관련 종사자에 대한 이동중지" 명령을 아래와 같이 공고할 수 있다.

나. 검역본부장은 KAHIS에 등록되어있는 소 사육농장 및 축산관계자에 대해 SMS 등을 통해 전파한다.

다. 시·도지사 및 시장·군수는 관내 모든 축산농장·축산관련 종사자(업체)에게 SMS 및 마을방송 등을 통해 상황을 전파하고 동시에「가축전염병 예방법 시행규칙」제22조의5 규정에 따라 "이동중지 명령"을 공고한다.

* SMS 예시 : ○○군 럼피스킨병 발생, 00월 00일 00시까지 모든 소 농장·작업장에 가축·사람·차량·물품 등 이동금지 발령

라. 농협·축종별단체·협회는 자체 연락망을 통해 Standstill 발령 및 준수사항을 전파

1) 특히, 도축·사료·동물약품·분뇨·기자재 등 모든 축산관련 작업장 경영자는 소속직원 및 지입차량 기사 등에게 즉시 통보

6. 일시 이동중지(Standstill) 이행상황 점검

가. 지자체에서는 주요 도로에 임시 통제초소를 설치하여 축산관련차량의 이동제한을 실시한다.

나. 축산관련 작업장 출입구에 관련차량의 이동을 통제한다.

다. 소·축산관련 물품·차량·종사자의 농장출입 금지여부를 순회점검을 실시한다.

7. 일시 이동중지(Standstill) 기간 동안 적용 대상자 조치요령

가. 가축 등에 대한 일시 이동중지 적용 대상자는 축산관련 작업장 출입을 금지한다.

나. 이동 중인 축산관련 차량은 출발한 장소로 돌아오거나 축산관련 작업장이 아닌 가축방역상 안전한 장소로 이동한다.

8. 일시 이동중지(Standstill) 기간 동안 주체별 방역조치 사항

가. 소 농장

1) 농장에서 사용 중인 축산차량은 농장에 주차하여 운행을 중지한 후, 차량의 내·외부를 철저히 세척·소독하며, 농장의 내·외부 및 흡혈성 매개체가 서식할 우려가 있는 곳을 소독한다.

2) 이동중지 적용 대상자 중에서 부득이 하게 이동을 하여야 하는 경우에는 승인을 받아야 하며, 이 경우 이동중지 대상자는 시·도 가축방역기관의 장에게 이동승인 신청서와 소독필증 제출하여야 한다.

나. 축산관련 종사자 : 축산관련 종사자는 소유 차량을 사무실 또는 집에 주차하여 운행을 중지한 후 차량 내·외부를 철저히 세척 및 소독한다.

다. 축산관련 작업장

1) 축산관련 작업장에서 이용하는 축산관련 차량은 일시 이동중지 발령 전 해당 작업장으로 이동하고, 차량의 내·외부를 철저히 소독하고 작업장 전체에 대해 일제히 소독을 실시하고, 흡혈성 매개체에 대한 구제를 실시한다.

2) 분뇨차량, 중간유통(계류 등) 등 기타 축산차량도 이에 준하여 조치한다.

라. 농림축산식품부

1) 관계 기관별 행동요령을 총괄 지휘한다.

2) 일시 이동중지 명령 발동 후 동 명령기간 동안 이행점검 등 필요한 방역조치를 실시한다.

3) 일시 이동중지 기간동안 럼피스킨병 방역상황실 비상체제를 24시간 운영 및 대응에 따른 각종 불편 및 민원을 최소화한다.

4) 명령 발동 이전에 지방자치단체 및 기관, 협회(단체)별 이행 준비 상황을 확인하고 세부 실시사항에 대한 운영요령을 안내한다.

5) 정부합동점검반 편성, 운영을 계획하고 일시 이동중지 이행 사항실태에 대해 점검한다.

마. 농림축산검역본부

1) 합동점검반편성 및 운영 계획에 따라 일시 이동중지 이행사항 실태를 점검한다.

2) 주요도로에 거점소독시설 및 임시 통제초소를 방문하여 축산관련 차량의 이동중지 및 명령위반 여부를 점검한다.

3) 축산관련 작업장 출입구에 관련 차량의 이동중지 및 출입 통제 여부를 점검한다.

4) 생축、축산물품、차량、종사자의 농장 이동중지 및 출입 통제 여부를 점검한다.

5) 축산시설 및 축산차량의 GPS정보를 통한 축산시설 출입여부를 점검을 할 경우 이동중지 이행점검표(이하 "이행점검표"라 한다)를 참고하여 점검할 수 있다.

6) 점검 후「가축전염병 예방법령」위반 사항이 있을경우 해당 위반 조항에 따라 조치하고 이동중지명령 위반에 대한 확인서를 징구하고 관할 지자체에 통보한다.

바. 시、도(시、군)

1) 주요도로에 통제초소를 설치하고 가축 이동을 위한 차량 등의 이동중지 이행여부를 점검 후 결과를 수시로(상황별로) 농림축산식품부에 보고한다.

2) 자체 점검반을 구성하고 점검계획을 마련하여 농장, 축산관계 시설(도축장, 사료공장, 분뇨처리시설 등) 등에 대한 점검을 실시한다.

3) KAHIS의 축산차량 GPS정보를 활용하여 축산차량이 축산시설에 방문하였는지여부를 수시로 점검하고, 위반사항 확인 시 행정 조치토록 한다.

4) 이동중지 이행실태 점검 결과 이동중지 명령 위반자에 대하여는 관련법의 규정에 따라 처분하도록 한다.

5) 점검반에서 동 명령 위반자에 대한 통보 즉시 관련법에 따라서 고발 등 조치토록 한다.

6) 관할지역의 군부대 및 경찰청에 이동통제 초소 및 거점소독시설에 인력을 지원하고 점검할 수 있도록 사전 협조를 요청한다.

7) 농림축산검역본부 등 점검반 요청 시 각 관할 소재의 축산관계시설, 축산농장, 거점소독시설(이동통제시설)의 소재지 등에 대한 정보를 제공한다.

사. 시、도 방역가축기관(동물위생연구소 등)

1) 농림축산식품부장관이 이동중지 명령 시 이동중지 대상에서 예외대상으로 정해진 경우 해당자는 시、도 가축방역기관의 장에게 이동승인을 신청하고 시、도 가축방역기관의 장이 승인한다.

2) 이동승인의 신청에 의하여 시、도 가축방역기관의 장으로부터 이동승인을 받은 대상은 소독 등 필요한 방역조치(소독필증 제출)를 한 후 "이동승인서"를 발급받을 수 있다.

* 이동승인서 :「가축전염병 예방법 시행규칙」별지 제8호의3서식

아. 농협중앙회

1) 일시 이동중지 명령 발동 이전 및 발동기간 중 축산농장 등에 대해 소독

지원 및 홍보를 실시한다.

2) 공동방제단·축협의 방역차량 등을 이용하여 주요도로 및 방역취약지(소규모 농장 등)에 대해 일제히 소독한다.

3) 축산농장, 축산관련시설(사료회사, 분뇨 처리업체 등)에 동 실시내용에 대해 적극 홍보한다.

4) 매6시간마다 소독 실적을 취합하여 농림축산식품부 상황실로 결과를 제출한다.

5) 축산관계차량 등의 이동명령 위반에 대해 발견 시 즉시 농림축산검역본부(중앙기동점검반) 또는 관할 지자체(시·군)에 신고한다.

자. 협회 및 계열사

1) 소속 농장에 대해 일시 이동중지명령 준수사항 및 소독조치에 대해 홍보를 실시한다.

※ (관련 협회) 대한한돈협회, 한국축산물처리협회 (대상 계열사) 전국 양돈계열회사

2) 소속 회원농장에 대해 다음의 사항을 사전에 홍보하고, 명령발동기간 중 6시간 단위로 이행여부를 재확인한다.

- 이동중지 및 이동제한 명령을 준수하고, 소유 차량(GPS 미등록 자가용 포함) 및 농장에 대한 세척·소독을 철저히 하도록 홍보

3) 각 협회는 매6시간별로 농장 대상 홍보실적(SMS 등)을 취합하여 농림축산식품부 상황실로 결과를 제출한다.

9. 일시 이동중지(Standstill) 예외 대상

가. 사료의 보관·공급의 목적으로 불가피하게 이동하여야 하는 경우

나. 치료 등을 목적으로 불가피하게 축산관계시설 등을 출입하여야 하는 경우

다. 해당 지역의 럼피스킨병 발생 및 확산 상황을 고려하여 이동승인이 필요하다고 인정하는 아래 사례 등의 경우

1) 축산농장, 축산관계시설에서 머무는 사람을 위한 먹거리, 생활용품, 의약품 등 생활필수시설 공급을 위한 이동

- 축산관계자가 아닌 일반 외부인을 통한 반입 허용하되 해당 외부인 및 반입차량에 대한 소독 등 방역조치 필수

2) 축산농장, 축산관계시설에서 생활하는 학생이 학업을 위해 학교, 학원 등을 다니는 경우

- 축산농장, 축산관계시설 출입 시 소독 등 방역조치 필수

3) 축산농장, 축산관계시설에 머무는 자가 질병 등의 사유로 병원 등 의료시설

을 이용해야 하는 경우

- 축산농장, 축산관계시설 출입 시 소독 등 방역조치 필수

4) 도축장 종사자(품질평가사, 도축검사관 포함)로서 축산관계 시설에 머무르지 않고 도축장으로 출퇴근하는 자

- 다만, 도축장 운영조건 등은 농림축산식품부 사전 협의 후, 승인

5) 기타 가축방역기관장의 승인을 받은 경우(농림축산식품부 협의 필요)

라. 일시 이동중지 이행상황을 점검하거나 소독을 지원하는 경우

마. 도축출하 가축을 운반 중인 차량의 경우(다만, 시·도지사는 도축장에 검사관 또는 가축방역관을 배치하여 도축장 도착 즉시 가축에 대한 임상관찰을 실시하여야 함)

10. 일시 이동중지(Standstill) 명령 해제

가. 농림축산식품부장관 또는 시·도지사는 발생농장의 역학조사에 따른 역학관련 농장의 이동제한 등 방역조치가 완료되면 일시 이동제한 명령을 해제한다.

나. 필요 시 이동제한 기간을 연장할 수 있으며, 해제는 발령절차와 동일하게 전파한다.

[별표 5]

역학조사 관련농장 등의 방역조치 (제19조 및 제28조 관련)

1. 발생농장에 가축을 공급한 농장 또는 정액을 공급한 인공수정센터 등(발생농장이 해당 정액을 사용한 경우에 한한다) : 발생일 기준 과거 28일 이내에 가축 또는 정액을 공급한 경우에 마지막 공급일부터 28일 이상 이동제한 조치를 하고, 함께 사육하고 있는 감수성동물에 대하여 임상검사를 실시하고 이상증상 발견시 정밀검사 실시

2. 발생농장에서 공급한 가축을 사육하고 있는 농장

 가. 발생일 기준 과거 28일 이내에 공급한 가축이 있는 경우에 해당농장에 대하여 이동제한을 실시하고, 감수성이 있는 가축은 지체없이 살처분하고 오염물건은 소독 또는 소각.매몰조치(백신접종 미실시 유형에 한함)

 나. 발생일 기준 과거 28일 이내에 공급한 가축이 있는 경우에 해당농장에 대하여 마지막 입식일부터 28일 이상 이동제한 조치를 하고, 함께 사육하고 있는 감수성동물에 대하여 임상검사 및 혈청검사를 실시하여 감염의 우려가 없을 경우 이동제한을 해제

3. 발생농장에서 생산한 정액과 해당 정액을 사용한 농장

 가. 발생일 기준 28일 이내에 생산된 정액은 전량 폐기

 나. 발생일 기준 28일 이내에 생산된 정액을 사용한 농장의 가축에 대하여 해당 정액 사용일부터 28일 이상 이동제한 조치를 하고, 함께 사육하고 있는 감수성가축에 대하여 임상검사를 실시하고 이상증상 발견시 정밀검사 실시

4. 발생농장 환축과 접촉한 사람(소유자등.진료수의사.인공수정사.가축 출하차량 운전자 등)이 방문하였거나 발생농장을 출입하였던 차량이 출입한 농장 : 발생일 기준 과거 28일 이내에 방문 또는 출입한 다른 농장의 가축에 대하여 마지막으로 방문 또는 출입한 날부터 28일 이상 이동제한 조치를 하고, 함께 사육하고 있는 감수성가축에 대하여 임상검사를 실시하고 이상증상 발견 시 정밀검사 실시

5. 발생농장 출하가축의 도축장 등

 가. 백신접종 미실시 상황에서 발생시

  1) 발생일 기준 과거 28일 이내에 출하된 가축이 도축장에 계류되어있는 경우 당해 계류가축 전두수를 지체없이 살처분

2) 발생일 기준 과거 28일 이내에 출하된 가축이 도축되어 지육 등 상태로 보관 또는 판매중인 경우에는 발생농장과 같은 날 도축된 물량만 폐기(이 경우 일자별로 도축물량이 구분되지 아니한 때에는 보관 또는 판매중인 물량 전체를 폐기)

3) 발생일 기준 과거 28일 이내에 출하가축을 도축한 도축장을 방문한 차량 또는 사람이 출입한 다른 농장에 대하여는 차량 또는 사람이 마지막 방문한 날부터 28일 이상 이동제한 조치를 하고, 함께 사육하고 있는 감수성가축에 대하여 임상검사를 실시하고 이상증상 발견시에는 정밀검사를 실시하며, 방문한 시설에 대하여는 청소, 세척 및 소독 실시

4) 발생일 기준 과거 28일 이내에 출하가축을 도축한 도축장에 방문한 사람 및 차량에 대하여는 방문 당시 의복·신발, 차량 등에 대한 세척·소독 및 건조 후 운행토록 조치

5) 발생일 기준 과거 28일 이내에 발생농장 출하가축을 도축한 도축장에 대해서는 가축방역관 입회 하에 도축장 내외부 및 작업인부 등에 대해서 청소·세척·소독 후 이동제한 해제

나. 백신접종 실시 상황에서 발생시

1) 발생일 기준 과거 28일 이내에 출하된 가축이 도축장에 계류하고 있는 경우 다시 생체검사를 실시하고 이상이 없는 경우 일반 도축물량 작업이 모두 끝난 후 도축·생체검사

2) 발생일 기준 과거 28일 이내에 출하된 가축이 도축되어 지육 등 상태로 보관 중인 경우 냉장 보관 후 산도를 측정하여 유통을 허용하고 도축 부산물은 소독·폐기 또는 열처리 정제(랜더링) 처리

3) 발생일 기준 과거 28일 이내에 출하가축을 도축한 도축장을 방문한 차량 또는 사람(도축출하 당일 방문에 한함)이 출입한 다른 농장에 대하여는 관련 차량 또는 사람이 마지막 방문한 날부터 14일 이상 감수성가축에 대하여 임상검사를 실시하고 이상증상 발견시 정밀검사 실시하며, 방문한 시설에 대하여는 청소, 세척 및 소독

4) 발생일 기준 과거 28일 이내에 출하가축을 도축한 도축장(도축출하 당일 방문에 한함)에 방문한 사람 및 차량에 대하여는 방문당시 의복.신발, 차량 등에 대한 세척.소독 및 건조 후 운행토록 조치

5) 발생일 기준 과거 28일 이내에 발생농장 출하가축을 도축한 도축장에 대해서는 가축방역관 입회 하에 도축장 내외부 및 작업인부 등에 대해서 청소·세척·소독 후 이동제한 해제

6. 검역본부장 또는 시·도 가축방역기관장의 역학조사 결과 이동제한 등의 방역조치가 필요한 것으로 조사된 역학관련 차량(차량운전자 포함)에 대해서는 해당 축산시설을 마지막 방문한 날로부터 10일간 이동제한 조치 실시 및 접촉 당시 의복·신발·차량 등에 대한 세척·소독 및 건조 조치

7. 발생일로부터 과거 28일 이내에 발생농장을 출입한 사람 또는 차량(사료운반·소유자등.진료수의사.인공수정사.가축출하차량 등)이 방문한 시설(농장제외)에 대하여는 가축방역관 입회 하에 청소·세척 및 소독 후 이동제한 해제

8. 발생일 기준 과거 28일 이내에 발생농장으로부터 공급받은 분변 등이 있는 경우 생석회를 도포하거나 소독약을 살포하고 비닐 등으로 덮어 처리하여 반입된 날부터 30일 경과 후 병원체 오염여부 검사 결과 이상이 없는 경우 이동제한 해제

9. 발생농장에서 발생일 기준 과거 28일 이내에 발생농장으로부터 분변 등을 공급받은 분뇨처리업체의 관련시설에 대하여는 세척·소독 및 건조 조치하고 30일 동안 분뇨 등에 대하여 반출입 금지, 차량 등은 세척·소독 조치하고 7일간 이동제한 조치

10. 발생농장 소유자 등이 다른 지역에서 사육하거나 위탁사육 하는 농장 등으로 역학적으로 관련성이 있는 경우

   가. 발생농장 소유자 등이 다른 지역에서 사육하는 농장에 대해서는 발생일로부터 21일간 이동제한 및 주기적 임상관찰·청소·세척·소독

   나. 발생농장 소속 법인 계열 농장(위탁농장 포함)에 대해서는 발생일로부터 14일간 가축 이동 또는 출하 시 임상검사실시

11. 방역조치 기준일

   가. 방역조치 대상 선정 또는 방역조치 기간 산정 시 기준일(발생일 또는 방문일 등)은 기간 산정에 산입하지 않음

   나. 역학조사 등에서 발생일 이전에 임상증상이 나타난 것으로 확인되는 경우에는 발생일 대신 임상증상 발현일을 방역조치 기준일로 함

12. 방역조치 조정 등 : 시·도지사 또는 시장·군수는 검역본부장이 파견한 관계관 또는 관할 가축방역기관장의 기술자문을 받아 역학관련 방역조치 대상농장, 사람, 차량 등에 대한 이동제한 기간, 조치방법 등을 조정할 수 있다.

[별표 6]

럼피스킨병 지역별 위험도 (제28조 관련)

1. 위험도는 지형적 여건, 역학적 특성, 축산업 형태, 야생동물 서식실태, 계절적 요인 등을 종합적으로 고려하여 판단

가. 지형적 여건 : 지형을 구분시키는 산, 강 등의 자연적 요소와 고속도로 등 인위적 요소에 따른 분리 가능성 분석

나. 역학적 특성 : 기존 발생농장과의 관계 및 농장들 간, 계열사와의 관계, 사료회사 및 분뇨처리 업체와의 관계 등에 대한 역학적 관계 분석

* 발생한 질병 원인체의 특성에 대한 분석 포함

다. 축산업 형태 : 소의 밀집도(단위 면적당 농가수, 단위면적당 사육 두수, 단위면적당 축산종사자 수)에 대하여 방역대내 지역과 방역대 외 지역을 비교하여 해당지역의 상대적 밀집도 분석

라. 야생동물 서식실태 : 인근의 야생동물 존재 여부와 야생동물의 출현 빈도에 따른 위험도 분석

마. 계절적 요인 : 주변지역과의 평균 기온, 강수, 강설량에 따른 바이러스 생존 가능성 등에 대한 분석

바. 기타 고려사항 : 해당 농장 또는 지역적(마을단위 등) 특성 및 매개체(흡혈성 절지동물)의 서식 환경 반영

[별표 7]

입식시험실시요령 (제38조 제2항 관련)

1. 입식시험의 준비

가. 시장.군수는 입식시험 계획을 수립하고, 발생농장 소유자등에 대하여 소독.시험가축선정.검사 등 입식시험에 필요한 사항을 교육하여야 한다.

나. 해당 농장의 소유자등은 주택.관리사.축사내외.진입로.운동장.축산기자재 등에 대한 청소.세척 및 소독을 실시하여야 한다.

다. 시장.군수는 해당 농장에 대하여 청소.세척 및 소독실시 실태, 오염물건 처리상황 등에 대하여 점검을 실시하고 미흡한 사항을 발견하는 경우에는 입식시험을 개시하기 전에 보완하도록 조치하여야 한다.

2. 시험가축의 선정

가. 입식시험에 사용하는 가축(이하 “시험가축”이라 한다)은 럼피스킨병 예방접종을 받지 아니한 가축 또는 예방접종을 받은 가축에서 생산되지 아니한 가축으로서 관리지역밖에서 사육되고 있는 가축이어야 한다.

나. 시험가축은 입식시험을 개시하기 전에 실시한 정밀검사에서 럼피스킨병 항체가 검출되지 아니한 것(럼피스킨병 상시 백신접종 가축은 예외)이어야 한다.

다. 시험가축의 종류 및 두수는 다음 각호와 같다.

(1) 소 : 어린 일령의 소 2두

3. 입식시험의 방법

가. 발생농장의 소유자등은 시험가축의 구입장소.구입일자.운송방법、럼피스킨병 백신접종상황、항체검사결과 및 사육일지 등에 관한 기록을 작성하여야 한다.

나. 발생농장의 소유자등은 사료를 축사바닥에 두어 급여하는 등 시험가축이 발생농장중 오염 가능성이 있는 장소 또는 부위에 접촉할 수 있도록 주의를 기울여야 한다.

다. 가축방역관은 입식시험을 개시한 후 14일간은 매 2일마다, 그 이후 60일까지는 매주 2회 시험가축에 대한 임상검사를 실시하고 임상검사 내역을 기록하여야 한다.

라. 시장.군수는 입식시험 개시일부터 60일이 경과한 후 시료를 채취하여 검역본부장에게 정밀검사를 의뢰하여야 한다.

[별지 제1호서식]

럼피스킨병 의심축 신고서

접수시간 : 오전

1. 신고접수월일 : 오후

2. 신고자 주소 : _____ 전화번호 : _____

   성명 : _____(직 업) _____

3. 발생농가의 주소 : _____ 전화번호 :_____

   성명_____ _____

4. 신고사항

   유우, 육우, 물소, 기타

   사육두수 :

   발생두수 :

5. 증상 및 병력개요

6. 기 취한 응급조치

7. 신고자에 대한 지시사항

8. 신고수리자 성명

   소속 : 직급 : 성명 :

9. 조치사항(조치시간 및 내역)

[별지 제2호서식]

의사환축 발생신고서

1. 신고자 성명 시간 월일

2. 축 주 주 소 _____

성 명 _____

축사 소재지(축주의 주소와 상이한 경우):

3. 현지 조사일 : 시간

4. 사육두수 : 유우 육우 기타

5. 환축(축종, 두수)

- 백신접종 여부 및 접종일자 포함

6. 병력, 증상, 병변의 개요

-

-

7. 진단 소견

- 간이항원킷트 사용여부 및 결과 포함

- 출장자 소견

8. 시료 채취내역

9. 조치사항

- 출입구의 폐쇄, 가축의 계류, 소독조의 설치

10. 과거 21일간의 가축의 이동상황

- 판매
- 구입

11. 과거 7일간에 접촉한자

- 출입한적이 있는 수의사, 가축인공
- 수정사, 가축중개상, 당해관리자
- 다른 축사에의 방문 여부

12. 축주의 관리하는 다른 축사(두수)

13. 500m이내 축산농가의 유무

14. 생유 : 집유소의 소재지 출하선

15. 외국인 근로자 고용여부

16. 축주(가족포함) 및 종사자의 최근 21일 이내 해외출입국사실 여부

17. 최근 외국에서 소포의 여부

18. 기타 참고될 만한 사항

출장자 성명 시간 월일

[별지 제3호서식]

진단용 시료 채취 기록서

1. 일반사항

ㅇ 담당 가축방역관의 소속 및 성명 :

ㅇ 시료채취자의 소속 및 성명 :

ㅇ 축주의 성명 및 주소 :

ㅇ 시료 채취일자 및 시간 :

2. 의심질병에 관한 사항

ㅇ 의심되는 질병명 :

ㅇ 당해 농장의 병력 :

3. 임상관찰 결과

ㅇ 관찰 두수 :

ㅇ 의심질병 임상증상 유무(아래 해당 사항에 ∨ 표시)

침울 □	식욕부진 □	체온상승 □	수포 □		
궤양□	가피형성 □	파행 □	유량감소 □	폐사 □(___두)	유사산 □(___두)

ㅇ 기타 소견 :

4. 시료에 관한 사항

ㅇ 가축시료 : 두, 점

- 증상축 : 두, 점 (전혈 점, 혈청 점, 조직 점)
- 동거축 : 두, 점 (전혈 점, 혈청 점, 조직 점)

ㅇ 환경시료 : 점

* 시료채취 세부내역 : 붙임

5. 시료 및 동물에 관한 기타사항

[붙임] 시료채취 세부내역

□ 가축 시료

번호	축종 (품종)	축사 구분	연령	성별	병변발생 후 경과시간(추정)	체온 또는 폐사 후 경과시간(추정)	백신접종사항 (LSDV 시료에 한함)	시료내역(점수)			비고 (동거축 또는 증상축 표시)
								전혈	혈청	조직 (채취부위)	
1											
2											
3											
4											
5											
6											
7											
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11											
12											
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16											
17											
18											
19											
20											
21											
:											

□ 환경 시료

번호	채취 장소	점수	비고
1			
2			
3			
4			
5			

Control and prevention of lumpy skin disease

For more information on available strategies, please consult the FAO Position on the sustainable prevention, control and elimination of LSD, particularly in Eastern Europe and the Balkans.

PREVENTION OF LUMPY SKIN DISEASE

- The best protection comes from prophylactic vaccination of the entire cattle population, carried out well in advance in at-risk areas.
- Movements of cattle inside the country and across borders should be strictly controlled or totally banned. Authorized cattle movements should be accompanied by a veterinary certificate including all data concerning the animals' origins, and animal health guarantees.
- In affected villages, cattle herds should be kept separate from other herds by avoiding communal grazing, if possible without animal welfare issues. However, in some cases the whole village forms a single epidemiological unit and then the feasibility of separation has to be evaluated on a case-by-case basis.
- Movements of vaccinated animals can be allowed within a restricted zone within a country after it has been established that full immunity has been provided by a vaccine with proven efficacy (28 days after vaccination).
- Cattle should be treated regularly with insect repellents to minimize the risk of vector transmission of the disease. This measure cannot fully prevent transmission but may reduce the risk.

CURRENTLY AVAILABLE VACCINES, SELECTION OF AN EFFECTIVE VACCINE, ADVERSE REACTIONS AND VACCINATION STRATEGY

Only live vaccines are currently available against LSDV. No Differentiation of Infected from Vaccinated Animals (DIVA) vaccines have been developed against LSD. Live vaccines are authorized for use in cattle in Africa, but in other currently affected regions specific authorization is required prior to their use.

Annual vaccination is recommended in affected countries, and harmonized vaccination campaigns across regions provide the best protection. Calves from naïve mothers should be vaccinated at any age, while calves from vaccinated or naturally infected mothers should be vaccinated at 3-6 months of age.

Regional harmonized vaccinations are recommended and should be carried out before large-scale movements of cattle, for example prior to the onset of seasonal grazing.

Live, attenuated LSDV vaccines may cause mild adverse reactions in cattle. Local reaction at the vaccination site (Fig. 32) is common and acceptable as it shows that the attenuated vaccine virus is replicating and producing good protection. Common adverse reactions

include temporary fever and a brief drop in milk yield. Some animals may show mild generalized disease. However, skin lesions caused by attenuated virus are usually superficial, clearly smaller, and different from those caused by the fully virulent field strain (Figs. 32-34). They disappear within 2-3 weeks without converting into necrotic scabs or ulcers.

In practice, vaccination campaigns are often started when the virus is already widespread in the region. Development of full protection from the vaccine takes approximately three weeks. During this time, cattle may still get infected by the field virus, and may show clinical signs despite being vaccinated. Some animals may also be incubating the virus when vaccinated, and in such cases clinical signs are detected less than ten days after vaccination.

Attenuated LSDV vaccines

Currently, there are three vaccine producers manufacturing attenuated LSDV vaccines. Live, attenuated LSDV vaccines provide good protection in cattle if 80 percent vaccination coverage is attained. In practice, all animals need to be vaccinated, including small calves and pregnant cows. Regional vaccination campaigns should be preferred to ring vaccination.

Attenuated SPPV vaccines

Sheep pox virus vaccines have been used in cattle against LSDV in those regions where LSD and SPP are both present. As the protection provided by SPPV vaccines against LSDV is believed to be partial, selection of the vaccine should always be based on demonstrated efficacy of the vaccine against LSDV by a challenge trial carried out in a controlled environment.

FIGURE 32
Local reaction at vaccination site

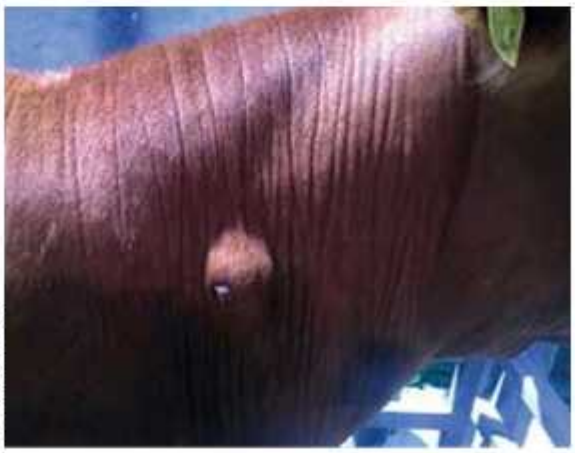
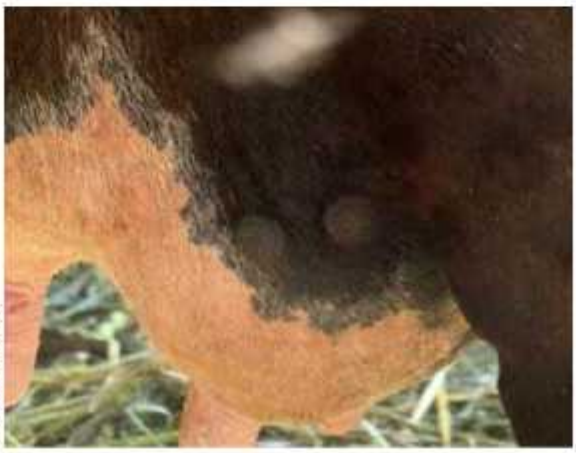


FIGURE 33
Post-vaccination superficial generalized skin lesions

FIGURE 34
Post-vaccination superficial skin lesions in the udder



If acceptable efficacy of the SPPV/GTPV vaccines is demonstrated, SPP vaccines can be used provided that full vaccination coverage and other appropriate control measures are in place.

Attenuated Gorgan GTPV vaccine

Commercially available GTPV Gorgan strain has been demonstrated to provide equal protection against LSD as the LSDV vaccines (Gari *et al*., 2015). Gorgan GTPV vaccine is a good, cost-effective alternative in those countries where GTP and LSD overlap.

CATTLE MOVEMENT CONTROLS

Movements of unvaccinated cattle represent the major risk factor for disease spread. During an LSD outbreak, movements of cattle should be strictly regulated, but in practice effective control is often difficult. Appropriate legal powers should be in place to allow veterinary authorities to act as soon as any illegal transport of cattle is detected.

Trade in live cattle must be banned immediately upon suspicion and/or confirmation of the disease. In many regions, unauthorized transboundary trade occurs despite restrictions, underlining the importance of regional vaccination. Severe penalties should be applied for illegal movements.

Where nomadic and seasonal farming is practiced, cattle should be vaccinated at least 28 days before going on the move. Movements of unvaccinated breeding animals should not be allowed during outbreaks.

Slaughter of cattle should be allowed only in slaughterhouses located within restricted zones because open transport vehicles waiting at their destination may give blood-feeding, flying vectors sufficient time to transmit the virus.

STAMPING-OUT POLICIES AND DISPOSAL OF CARCASSES

In many affected countries, either total or partial stamping-out policies have been implemented. In countries with limited resources, no kind of stamping out may be affordable. The efficacy of these methods is widely discussed by experts and decision-makers. According to the EFSA urgent advice on lumpy skin disease, vaccination has a greater impact in reducing LSDV spread than any stamping-out policy (EFSA, 2016).

Stamping out should always be combined with a sound compensation programme. Without timely and adequate compensation, cattle owners are likely to object to having their animals killed, leading to reduced reporting and the dissemination of the disease through illegal movements of infected animals. The long-term effect of stamping out on farmers' livelihoods, public perception and media involvement should be considered in any decisions.

Total stamping out has the best chance of success and is practical if the first incursion of the disease in a country or defined region is detected and notified without delay, and the threat of repeated incursions is low.

Because identifying particularly mild and early cases may be extremely challenging, several weeks may elapse between initial infection and detection of the disease, allowing spread of the virus by vectors. In addition, the epidemiological unit involved may often be a whole village rather than a single farm, reducing the efficacy of total or partial stamping-out policies. Partial stamping out by culling animals with clinical disease may reduce infectivity, but is unlikely to end an outbreak on its own.

FIGURE 35
Burial of carcasses

Timely, large-scale vaccination across the affected regions using an effective vaccine will bring an outbreak to a total halt regardless of the chosen stamping-out policy. However, the effect of the vaccination campaign may be felt earlier if total stamping out is undertaken.

When a stamping-out policy is implemented, culling and disposal of carcasses should take place as soon as possible in compliance with all animal welfare and safety requirements. Disposal by burial or burning should follow national rules on environmental protection. In some countries, these practices may not be allowed at all.

Appropriate methods for culling cattle are premedication and injection with barbiturates or other drugs, followed by captive-bolt stunning and pithing or free bullet. Disposal of carcasses should be conducted by burial, burning or rendering, according to national procedures.

Importantly, regardless of the stamping-out policy selected, 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. In the same way, no animal showing any clinical signs of LSD should be sent to a slaughterhouse, but should be culled and disposed of either on-site or at an appropriate rendering plant. It should be borne in mind that farmers will benefit from replacement of culled animals with healthy, immunized ones as a herd usually needs several months to recover and is unlikely to return to the same level of production as before LSD infection.

CLEANING AND DISINFECTION OF PERSONNEL, PREMISES, AND THE ENVIRONMENT

Lumpy skin disease virus is very stable and survives well in extremely cold and dry environments within the pH range 6.3-8.3. Infected animals shed scabs from skin lesions. Inside the scabs, the virus may remain infectious for several months.

Thorough cleaning and disinfection with appropriate products should be performed on affected farms, trucks, premises and potentially contaminated environments. Personnel should also undergo disinfection.

Although LSDV is sensitive to most disinfectants and detergents, in order to effectively decontaminate animal facilities and holdings, mechanical removal of surface material such as dirt, manure, hay and straw is required beforehand. The disinfectant selected must be able to penetrate any organic material surrounding the infectious virus in the environment. FAO provides practical recommendations for decontamination of premises, equipment and the environment in the Animal Health *Manual on Procedures for Disease Eradication by Stamping Out* (FAO, 2001).

INSECT CONTROL ON ANIMALS AND IN THE ENVIRONMENT

Efficient insect control on cattle or in holdings may reduce the rate of mechanical transmission, but cannot totally prevent it, particularly where cattle are free-roaming or kept in fenced pastures. Anti-mosquito nets can be considered in cases when cattle are permanently kept indoors. The application of spot-on repellents can protect cattle from insects and ticks for short periods.

When insecticides are used, withdrawal times for milk and meat need to be considered. Large-scale use of insecticides in the environment is not recommended as it may be harmful to the ecological balance, and to other useful insects such as honeybees. Moreover, the risk to the environment is not fully understood.

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

FIGURE 36
Disinfection operations following an LSD outbreak

BIOSECURITY MEASURES AT HOLDINGS

In the event of LSD entering a country, farm biosecurity should be raised to the highest feasible level, taking into consideration the limits of the epidemiological unit in each case. As the disease is spread by vectors, such measures may not totally prevent an incursion, but the risk can be reduced.

Purchase of new animals that are either incubating the disease or are viraemic without exhibiting any symptoms presents a major risk of introducing the disease into a naïve herd. Introduction of new animals into herds should therefore be limited. Stock should be bought only from trusted sources. New animals should be examined and declared free of clinical signs prior to movement and on arrival, and should be kept separated/quarantined from the herd for at least 28 days.

Farm visits should be restricted to essential services with entry points to properties limited. All visitor vehicles and equipment should be cleaned in a wash-down bay when entering farms. Boots should also be cleaned or, alternatively, shoe covers should be worn. Visitors entering farms should wear clean protective clothing.

TARGET AUDIENCE FOR AWARENESS CAMPAIGNS

Awareness campaigns should be targeted at official and private veterinarians, both field and abattoir, veterinary students, farmers, herdsmen, cattle traders, cattle truck drivers and artificial inseminators. Cattle truck drivers are in a particularly good position to identify infected animals on farms and in slaughterhouses and at cattle collection and resting stations, and to notify veterinary authorities of any clinical suspicion as soon as possible.

SURVEILLANCE PROGRAMMES

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

As there are no DIVA vaccines against LSD, serological surveillance is of no use in affected countries or zones where the entire cattle population is vaccinated. However, serology can be used whenever the presence of unnoticed/unreported outbreaks are investigated in disease-free regions either bordering, or in close proximity to, affected regions with unvaccinated cattle. In such regions, the presence of seropositive animals can be considered as an indication of recent outbreaks.

LUMPY SKIN DISEASE

AETIOLOGY

Classification of the causative agent

Lumpy skin disease (LSD) is caused by lumpy skin disease virus (LSDV), a virus from the family *Poxviridae*, genus *Capripoxvirus*. Sheeppox virus and goatpox virus are the two other virus species in this genus.

Resistance to physical and chemical action

Temperature:	Susceptible to 55°C/2 hours, 65°C/30 minutes. Can be recovered from skin nodules kept at –80°C for 10 years and infected tissue culture fluid stored at 4°C for 6 months.
pH:	Susceptible to alkaline or acid pH. No significant reduction in titre when held at pH 6.6–8.6 for 5 days at 37°C.
Chemicals/Disinfectants:	Susceptible to ether (20%), chloroform, formalin (1%), and some detergents, e.g. sodium dodecyl sulphate.
	Susceptible to phenol (2%/15 minutes), sodium hypochlorite (2–3%), iodine compounds (1:33 dilution), Virkon® (2%), quarternary ammonium compounds (0.5%).
Survival:	LSDV is remarkably stable, surviving for long periods at ambient temperature, especially in dried scabs. LSDV is very resistant to inactivation, surviving in necrotic skin nodules for up to 33 days or longer, desiccated crusts for up to 35 days, and at least 18 days in air-dried hides. It can remain viable for long periods in the environment. The virus is susceptible to sunlight and detergents containing lipid solvents, but in dark environmental conditions, such as contaminated animal sheds, it can persist for many months.

EPIDEMIOLOGY

- Morbidity rate varies between 10 and 20% although it has been reported in some places to be as high as 45%.
- Mortality rates of 1 to 5% are considered usual.

Hosts

- LSDV is highly host specific and causes diseases only in cattle (*Bos indicus* and *B. taurus*) and water buffalo (*Bubalus bubalis*). There is evidence from a study in Ethiopia of differential breed susceptibility to LSD, with Holstein Friesian or crossbred cattle exhibiting higher morbidity and mortality due to LSD when compared with local zebu cattle.
- In wildlife, the presence of the virus has been reported in springbok (*Antidorcas marsupialis*) and in asymptomatic eland (*Taurotragus oryx*) in Namibia; oryx (Oryx gazelle) in South Africa; Arabian oryx (*Oryx leucoryx*) in Saudi Arabia; and in Guar (*Bos gaurus*), Mainland serow *(Capricornis sumtraensis)* and Banteng *(Bos javanicus)* in Thailand in 2021. The susceptibility of wild and captive wild ruminants (e.g. zoo ruminants) is not well-known and their possible role in the epidemiology of LSD is still under investigation.
- LSDV is not zoonotic, so humans cannot get affected by the disease.
- There are no reports of LSD in sheep and goats or of their epidemiological involvement in the disease despite being kept in close proximity to cattle.

Transmission

- The principal means of transmission is believed to be by arthropod vector. Mechanical LSDV transmission leading to clinical disease in recipient cattle under experimental conditions has been shown for *Aedes aegypti* mosquitoes (and *Stomoxys calcitrans* and *Haematopota spp.* biting flies. It is highly likely that several other mosquitoes (e.g. *Culex mirificens* and *Aedes natronius*), biting flies (e.g. *Biomyia fasciata*), *Culicoides* and male ticks (*Riphicephalus appendiculatus* and *Amblyomma hebraeum*) could play a role in the transmission of the virus under field conditions. The relevance of different arthropod vectors is likely to vary in different areas depending on the abundance and feeding behaviour of the vector.
- Direct contact with an infected animal is considered to play a minor role in the transmission of the virus. It is not known if transmission can occur via fomites, for example ingestion of feed and water contaminated with infected saliva, but the occurrence of newly detected recombinant field strains suggests these routes may be at play.
- Infected bulls can excrete the virus in their semen and transmission of LSD via infected semen has been demonstrated.
- There has been one report of placental transmission of LSD.

Sources of virus

- Skin nodules, scabs and crusts contain relatively high amounts of LSDV. Virus can be isolated from this material for up to 35 days and likely for longer.
- LSDV can be isolated from blood, saliva, ocular and nasal discharge, and semen.
- LSDV is found in the blood (viraemia) intermittently from approximately 7 to 21 days post-infection at lower levels than present in skin nodules
- Shedding in semen may be prolonged; LSDV has been isolated from the semen of an experimentally infected bull 42 days post-inoculation.

Occurrence

LSD is endemic in most African countries. Since 2012 it has spread rapidly through the Middle East, south-east Europe and West and Central Asia.. Since 2019, several outbreaks of LSD have been reported by Members in Asia, and recently, south-east Asia.

For more recent, detailed information on the occurrence of this disease worldwide, see the WOAH World Animal Health Information System Interface [https://wahis.woah.org/#/home]

DIAGNOSIS

Under experimental conditions, following the virus inoculation, the incubation period is between 4 and 14 days. For the *Terrestrial Manual* purposes, the incubation period is 28 days.

Clinical diagnosis

LSD does not cause chronic disease. It does not exhibit latency, and recrudescence of disease does not occur.

LSD signs range from inapparent to severe disease.

- Fever that may exceed 41°C
- Marked reduction in milk yield in lactating cattle
- Depression, anorexia and emaciation
- Rhinitis, conjunctivitis and excessive salivation
- Enlarged superficial lymph nodes
- Cutaneous nodules of 2–5 cm in diameter develop, particularly on the head, neck, limbs, udder, genitalia and perineum within 48 hours of onset of the febrile reaction. These nodules are circumscribed, firm, round and raised, and involve the skin, subcutaneous tissue and sometimes even the underlying muscles
- Large nodules may become necrotic and eventually fibrotic and persist for several months ("sit-fasts"); the scars may remain indefinitely. Small nodules may resolve spontaneously without consequences
- Myiasis of the nodules may occur
- Pox lesions, erosions and ulcers may develop in the mucous membranes of the mouth and alimentary tract and in the trachea and lungs

- Limbs and other ventral parts of the body, such as the dewlap, brisket, scrotum and vulva, may be oedematous, causing the animal to be reluctant to move
- Bulls may become permanently or temporarily infertile
- Pregnant cows may abort and be in anoestrus for several months
- Recovery from severe infection is slow due to emaciation, secondary pneumonia, mastitis, and necrotic skin plugs, which are subject to fly strike and shed leaving deep holes in the hide.

There is no current evidence of variation in virulence regarding the different LSDV strains.

Differential diagnosis

Severe LSD is highly characteristic, but milder forms can be confused with the following:

- Bovine herpes mammillitis (bovine herpesvirus 2) (sometimes known as pseudo-lumpy skin disease)
- Bovine papular stomatitis (Parapoxvirus)
- Pseudocowpox (Parapoxvirus)
- Vaccinia virus and Cowpox virus (Orthopoxviruses) – uncommon and not generalised infections
- Dermatophilosis
- Demodicosis
- Insect or tick bites
- Besnoitiosis
- Rinderpest
- *Hypoderma bovis* infection
- Photosensitisation
- Urticaria
- Cutaneous tuberculosis
- Onchocercosis.

Laboratory diagnosis

Samples

Identification of the agent

- Conventional polymerase chain reaction (PCR) is the least expensive and quickest method for detection of LSDV. Skin nodules and scabs, saliva, nasal secretions, and blood are suitable samples for PCR detection of LSDV.
- Real-time PCR methods are available for detection of capripoxvirus; species-specific PCR methods are available to differentiate between LSDV, sheeppox virus and goatpox virus, and DIVA PCR methods have been published to differentiate a homologous vaccine virus from virulent field strain
- Virus isolation has the advantage of demonstrating the presence of live virus in the sample.
- Immunohistochemistry can be used to identify presence of virus to the genus level.
- Electron microscopy can be used to identify the classic poxvirus virion but cannot differentiate to genus or species level.
- Sequencing (partial or whole-genome) provides the most information relating to cluster grouping (classical field, vaccine-like or, more recently, field recombinant strains).

Serological tests

It is not possible to distinguish the three viruses in the *Capripoxvirus* genus (sheeppox virus, goatpox virus and LSDV) using serological techniques.

- Virus neutralisation: this is currently the gold standard test for the detection of antibodies raised against capripoxviruses.
- Western blot: highly sensitive and specific but expensive and difficult to perform.
- Capripoxvirus antibody enzyme-linked immunosorbent assay: new commercial kits for detection of capripoxvirus antibodies are currently being developed and released on to the market.

A virus specific immunoperoxidase monoloayer assay (IPMA) has also been developed for the detection of antibodies against LSDV but is yet to be validated as a standard by the WOAH Biological Standards Commission.

For more detailed information regarding laboratory diagnostic methodologies, please refer to Chapter 2.4.14 Lumpy skin disease in the latest edition of the WOAH *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* under the heading "B. Diagnostic Techniques".

PREVENTION AND CONTROL

Evidence from the recent LSD epidemic in Europe and western Asia has revealed that successful control and eradication of LSD relies on early detection of the index case, followed by a rapid and widespread vaccination campaign. It is unlikely that total stamping-out (killing all clinically affected cattle and unaffected herd-mates) and partial stamping-out (killing only clinically affected cattle) alone, in the absence of vaccination, can eradicate LSD.

In unaffected countries or zones, it is also important to prepare any preventive vaccination or emergency vaccination plans.

Sanitary prophylaxis

- Free countries:
  - Import restrictions on domestic cattle and water buffaloes, and selected products from these animals in accordance with the recommendations in the chapter on LSD in the WOAH *Terrestrial Animal Health Code*.
  - Surveillance measures to detect LSD are recommended over a distance of at least 20 kilometres from an infected country or zone, in reference to recommendations in the chapter on LSD in the WOAH *Terrestrial Animal Health Code*.
- Infected countries:
  - Control of LSD depends on restriction of movement of cattle in infected regions, removal of clinically affected animals, and vaccination. Movement restrictions and removal of affected animals alone without vaccination are usually not effective.
  - Proper disposal of dead animals (e.g. incineration), and cleaning and disinfection of premises and implements are recommended for LSD.
  - There is currently no evidence of the efficacy of vector control in preventing disease
  - See WOAH *Terrestrial Animal Health Code* for recommendations on the recovery of LSD-free status of a country or zone, including recommendations on surveillance and waiting periods.

Medical prophylaxis

- LSDV live attenuated vaccine strain, for example 'Neethling' LSD strain.
- Sheeppox or goatpox virus live attenuated vaccine strain against LSDV if used at a higher dose than for prevention of sheeppox or goatpox.
- Vaccine side-effects such as a local reaction at the inoculation site or small generalised skin nodules, as well as fever and reduction in milk yield, may follow vaccination with homologous vaccine, more rarely after vaccination with sheeppox vaccine.
- Currently, no new generation recombinant capripox vaccines are commercially available.

For more detailed information regarding vaccines, please refer to Chapter 2.4.14 Lumpy skin disease in the latest edition of the WOAH *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* under the heading "Requirements for Vaccines".

For more detailed information regarding safe international trade in terrestrial animals and their products, please refer to the latest edition of the WOAH *Terrestrial Animal Health Code*.

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The WOAH will periodically update the WOAH Technical Disease Cards. Please send relevant new references and proposed modifications to the WOAH Science Department (scientific.dept@woah.org). Last updated June 2022.

COUNCIL DIRECTIVE 92/119/EEC

of 17 December 1992

introducing general Community measures for the control of certain animal diseases and specific measures relating to swine vesicular disease

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 43 thereof,

Having regard to the proposal from the Commission (1),

Having regard to the opinion of the European Parliament (2),

Having regard to the opinion of the Economic and Social Committee (3),

Whereas live animals are listed in Annex II to the Treaty; whereas the marketing of live animals constitutes an important source of revenue for the agricultural population;

Whereas it is necessary to establish at Community level the control measures to be taken in the event of outbreaks of disease, in order to ensure rational development of the farming sector and to contribute to the protection of animal health in the Community;

Whereas an outbreak of disease can quickly take on epizootic proportions, causing mortality and disturbances which may severely compromise the profitability of stock farming;

Whereas control measures must be taken as soon as the presence of a disease is suspected so that immediate and effective action can be implemented as soon as its presence is confirmed;

Whereas the measures to be taken must allow the spread of the disease to be prevented, in particular by carefully controlling movements of animals and products liable to spread the infection;

Whereas the prevention of diseases in the Community should normally be based on a non-vaccination policy; whereas, however, it is important to make provision for vaccination where a serious situation demands such action;

Whereas in order to ensure that all vaccinated animals are recognizable, it is necessary for these animals to be identified; whereas in order to give the necessary guarantees, the potency of the vaccine must be approved by a reference laboratory designated by the Community;

Whereas a thorough epidemiological enquiry is essential to prevent any spread of diseases; whereas the Member States must establish special units for this purpose;

Whereas in order to ensure the effectiveness of the system of control, diagnosis of the diseases must be harmonized and must be carried out under the auspices of responsible laboratories, the coordination of which may be carried out by a reference laboratory designated by the Community;

Whereas Article 3 of Council Decision 90/424/EEC of 26 June 1990 on expenditure in the veterinary field (4) applies in the event of an outbreak of one of the diseases listed in Annex I;

Whereas common measures for the control of these diseases form a basis for maintaining a uniform standard of animal health;

Whereas specific provisions should also be laid down for each individual disease and, initially, for swine vesicular disease,

HAS ADOPTED THIS DIRECTIVE:

Article 1

This Directive defines the general Community control measures to be applied in the event of an outbreak of one of the diseases listed in Annex I.

Article 2

For the purposes of this Directive, the following definitions shall apply:

1. *holding:* any establishment (agricultural or other), situated in the territory of a Member State, in which animals are kept or bred;
2. *animal:* any domestic animal of a species liable to be directly affected by the disease in question, or any wild vertebrate animal likely to participate in the epidemiology of the disease, by acting as a carrier or reservoir of infection;
3. *vector:* any wild vertebrate or invertebrate animal which, by mechanical or biological means, is liable to transmit and spread the agent of the disease in question;
4. *owner or keeper:* any person or persons, either natural or legal, having ownership of the animals, or charged with keeping the said animals, whether or not for financial reward;
5. *incubation period:* the period of time likely to elapse between exposure to the agent of the disease and the

(1) OJ No C 148, 7. 6. 1991, p. 12.
(2) OJ No C 280, 28. 4. 1992, p. 124.
(3) OJ No C 339, 31. 12. 1991, p. 12.

(4) OJ No L 224, 18. 8. 1990, p. 19. Decision as amended by Decision 91/133/EEC (OJ No L 66, 13. 3. 1991, p. 18).

onset of clinical symptoms. The duration of this period shall be that indicated in Annex I for the disease in question;

6. *confirmation of infection:* the declaration by the competent authority of the presence of any of the diseases listed in Annex I based on laboratory results; however, in the event of an epidemic, the competent authority may also confirm the presence of the disease on the basis of clinical and/or epidemiological results;

7. *competent authority:* the central authority of a Member State responsible for carrying out veterinary checks or any veterinary authority to which it has delegated that responsibility;

8. *official veterinarian:* the veterinarian appointed by the competent authority.

Article 3

Member States shall ensure that it is compulsory for the suspected presence of any of the diseases referred to in Annex I to be notified immediately to the competent authority.

Article 4

1. When animals on a holding are suspected of being infected or contaminated with one of the diseases listed in Annex I, Member States shall ensure that the official veterinarian immediately activates official investigation arrangements to confirm or rule out the presence of the disease in question and, in particular, must take or have taken the samples necessary for laboratory examination. To that end the animals in question may be transported to the laboratories under the supervision of the competent authority, which shall take appropriate steps to prevent the disease from spreading.

2. As soon as the suspected presence of the disease is notified, the competent authority shall have the holding placed under official surveillance and shall in particular require that:

(a) a census be made of all categories of animals of susceptible species and that, in respect of each of these categories, the number of animals already dead, infected or liable to be infected or contaminated be recorded; the census must be kept up to date to take account of animals born or dying during the period of suspicion; the information in the census must be kept up to date and produced on request and may be checked at each visit;

(b) all animals of susceptible species on the holding be kept in their living quarters or confined in some other place where they can be isolated taking into account the possible role of vectors, where appropriate;

(c) no animals of susceptible species enter or leave the holding;

(d) all movement:

— of persons, animals of other species not susceptible to the disease and vehicles to or from the holding,

— of meat or animal carcases, or of animal feed, equipment, waste, droppings, litter, manure, or anything liable to transmit the disease in question

(e) be subject to authorization by the competent authority, which shall lay down the conditions for preventing any risk of the disease spreeding; appropriate means of disinfection be installed at the entrances and exits of buildings or places housing animals of susceptible species and of the holding itself;

(f) an epizootiological inquiry be carried out in accordance with Article 8.

3. Until such time as the official measures laid down in paragraph 2 are enforced, the owner or keeper of any animal in which disease is suspected shall take every appropriate measure to ensure compliance with paragraph 2, except for subparagraph (f) thereof.

4. The competent authority may apply any of the measures provided for in paragraph 2 to other holdings should their location, their configuration or contacts with the holding where the disease is suspected give reason to suspect possible contamination.

5. The measures referred to in paragraphs 1 and 2 shall not be withdrawn until the suspicion of the presence of the disease has been ruled out by the official veterinarian.

Article 5

1. Once it has been officially confirmed that one of the diseases listed in Annex I is present on a holding, Member States shall ensure that, in addition to the measures laid down in Article 4 (2), the competent authority requires application of the following measures:

(a) all animals of susceptible species on the holding shall be killed on the spot, without delay. The animals which have died or been killed shall either be burnt or buried on the spot, if possible, or destroyed in a carcase disposal plant. These operations shall be carried out in such a way as to minimize the risk of disseminating the agent of the disease;

(b) any substance or waste, such as animal feed, litter, manure or slurry, which is liable to be contaminated, shall be destroyed or treated appropriately. This treatment, carried out in accordance with the instructions of the official veterinarian, must ensure that any agent or vector of the agent of the disease is destroyed;

(c) after carrying out operations listed in subparagraphs (a) and (b), the buildings used for

housing animals of susceptible species, their surroundings, the vehicles used for transport and all equipment liable to be contaminated shall be cleaned and disinfected in accordance with Article 16;

(d) an epizootiological inquiry shall be carried out in accordance with Article 8.

2. When recourse is had to burial, it must be deep enough to prevent carnivorous animals from digging up the carcases or waste referred to in paragraph 1 (a) and (b) above and must be in suitable ground so as to prevent contamination of water tables or any environmental nuisance.

3. The competent authority may extend the measures provided for in paragraph 1 to other neighbouring holdings should their location, their configuration or contacts with the holding where the presence of the disease has been confirmed give reason to suspect possible contamination.

4. The restocking of the holding shall be authorized by the competent authority, following the satisfactory inspection by the official veterinarian of the cleaning and disinfection operations carried out in accordance with Article 16.

Article 6

Where animals living in the wild are infected or suspected of being infected, Member States shall ensure that appropriate action is taken. Member States shall inform the Commission and the other Member States, in the Standing Veterinary Committee set up by Decision 68/361/EEC [1], of the measures they have taken.

Article 7

1. In the case of holdings which consist of two or more separate production units, the competent authority may derogate from the requirements of Article 5 (1) (a) as regards healthy production units of a holding which is infected, provided that the official veterinarian has confirmed that the structure and size of these units and the operations carried out therein are such that they are completely separate as regards housing, keeping, staff, equipment and feeding, so as to prevent the spread of the agent of the disease from one unit to another.

2. Where recourse is had to paragraph 1, the rules laid down in Commission Decision 88/397/EEC [2] shall apply *mutatis mutandis*. These rules may be amended for the disease in question under the procedure laid down in Article 25 in order to take account of the specific nature of the disease.

[1] OJ No L 255, 18. 10. 1968, p. 23.
[2] Commission Decision 88/397/EEC of 12 July 1988 coordinating rules laid down by Member States in application of Article 6 of Council Directive 85/511/EEC (OJ No L 189, 20. 7. 1988, p. 25).

Article 8

1. The epizootiological enquiry shall deal with:

(a) the length of time during which the disease may have existed on the holding before being notified or suspected;

(b) the possible origin of the disease on the holding and the identification of other holdings on which there are animals of susceptible species which may have become infected or contaminated;

(c) the movement of persons, animals, carcases, vehicles, equipment or any other substances likely to have carried the agent of the disease to or from the holdings in question;

(d) the presence and distribution of disease vectors as appropriate.

2. A crisis unit shall be established in order to provide full coordination of all measures necessary to ensure eradication of the disease as quickly as possible and for the purpose of carrying out the epizootiological enquiry.

The general rules concerning national crisis units and the Community crisis unit shall be laid down by the Council, acting by a qualified majority on a proposal from the Commission.

Article 9

1. Where the official veterinarian finds, or considers on the basis of confirmed data, that disease could have been introduced from other holdings onto the holding referred to in Article 4 or from the latter onto other holdings as a result of the movement of persons, animals or vehicles or in any other way, those other holdings shall be placed under official surveillance in accordance with Article 4; this surveillance shall not be lifted until the suspected presence of disease on the holding has been officially ruled out.

2. Where the official veterinarian finds, or considers on the basis of confirmed data, that disease could have been introduced from other holdings on to the holding referred to in Article 5 or from the latter onto other holdings as a result of the movement of persons, animals or vehicles or in any other way, those other holdings shall be placed under official surveillance in accordance with Article 4; this surveillance shall not be lifted until the suspected presence of disease on the holding has been officially ruled out.

3. When a holding has been subject to the provisions of paragraph 2, the competent authority shall keep the provisions of Article 4 in force on the holding for at least the maximum incubation period pertaining to each disease following the likely time of introduction of infection as established by the epizootiological enquiry carried out in accordance with Article 8.

4. Where it considers that conditions permit, the competent authority may limit the measures provided for

in paragraphs 1 and 2 to a part of the holding and the animals contained therein provided that the holding can satisfy the conditions set out in Article 7, or to animals of susceptible species only.

Article 10

1. Once the diagnosis of one of the diseases in question has been officially confirmed, Member States shall ensure that the competent authority establishes around the infected holding a protection zone with a minimum radius of three kilometres, itself contained in a surveillance zone with a minimum radius of 10 kilometres. The establishment of the zones must take account of geographical, administrative, ecological and epizootiological factors relating to the disease in question, and of monitoring facilities.

2. Where the zones are situated in the territory of more than one Member State, the competent authorities of the Member States concerned shall cooperate in establishing the zones referred to in paragraph 1. However, if necessary, the protection zone and the surveillance zone shall be established under the procedure provided for in Article 26.

3. At the duly substantiated request of a Member State or on the Commission's initiative, it may be decided under the procedure laid down in Article 26, to modify (in particular to reduce or increase, as appropriate) the boundaries of the zones laid down in paragraph 1 or the duration of the restriction measures, taking into account:

— their geographical situation and ecological factors,

— the meteorological conditions,

— the presence, distribution and type of vectors,

— the results of the epizootiological studies carried out in accordance with Article 8,

— the results of laboratory tests,

— control measures actually applied.

Article 11

1. Member States shall ensure that the following measures are applied in the protection zone:

(a) all holdings within the zone having animals of susceptible species shall be identified;

(b) there shall be periodic visits to holdings having animals of susceptible species, a clinical examination of those animals including, if necessary, the collection of samples for laboratory examination; a record of visits and findings must be kept, with the frequency of visits being proportional to the seriousness of the epizootic on those holdings at greatest risk;

(c) the movement and transport of animals of susceptible species on public or private roads, excluding the service roads of holdings, shall be prohibited; the competent authority may, however, grant a derogation from that prohibition for the transit of animals by road or rail without unloading or stopping;

(d) animals of susceptible species must remain on the holding on which they are being kept, except to be transported under official supervision directly to a slaughterhouse located in that zone for emergency slaughter or, if that zone has no slaughterhouse under veterinary supervision, to a slaughterhouse in the surveillance zone designated by the competent authority. Such transport may be authorized by the competent authority only after the official veterinarian has carried out an examination of all the animals of susceptible species on the holding and confirmed that none of the animals is suspected of being infected. The competent authority responsible for the slaughterhouse shall be informed of the intention to send animals to it.

2. The measures applied in the protection zone shall be kept in force for at least the maximum incubation period pertaining to the disease in question after animals from the infected holding have been disposed of in accordance with Article 5 and cleaning and disinfection operations have been carried out in accordance with Article 16. However, where the disease is transmitted by an insect vector, the competent authority may fix the duration of the measures and lay down provisions for the possible introduction of sentinel animals. Member States shall forthwith inform the Commission and the other Member States, within the Standing Veterinary Committee, of the measures they have taken.

On expiry of the period referred to in the first subparagraph, the rules applied to the surveillance zone shall also apply to the protection zone.

Article 12

1. Member States shall ensure that the following measures are applied in the surveillance zone:

(a) all holdings having animals of susceptible species shall be identified;

(b) the movement of animals of susceptible species on public roads shall be prohibited except for the purpose of leading them to pasture or animal buildings; the competent authority may, however, grant a derogation from that prohibition for the transit of animals by road or rail without unloading or stopping;

(c) the transport of animals of susceptible species within the surveillance zone shall be subject to authorization by the competent authority;

(d) animals of susceptible species must remain inside the surveillance zone for a maximum incubation period after the most recent recorded case of disease. Thereafter, animals may be removed from that zone

to be transported under official supervision directly to a slaughterhouse designated by the competent authority for emergency slaugther. Such transport may be authorized by the competent authority only after the official veterinarian has carried out an examination of all the animals of the susceptible species on the holding and confirmed that none of the animals is suspected of being infected. The competent authority responsible for the slaughterhouse shall be informed of the intention to send animals to it.

2. The measures applied in the surveillance zone shall be kept in force for a period at least equal to the maximum incubation period after animals from the holding have been disposed of in accordance with Article 5 and cleaning and disinfection operations have been carried out in accordance with Article 16. However, where the disease is transmitted by an insect vector, the competent authority may fix the duration of the measures and lay down provisions for the possible introduction of sentinel animals. Member States shall forthwith inform the Commission and the other Member States, within the Standing Veterinary Committee, of the measures they have taken.

Article 13

Where the prohibitions provided for in Articles 11 (1) (d) and 12 (1) (d) are maintained beyond 30 days because of the occurrence of further cases of the disease and as a result problems arise in keeping the animals, the competent authority may, following an application by the owner explaining the rounds for such application, by the owner explaining the grounds for such applications authorize the removal of the animals from a holding within the protection zone or the surveillance zone, provided that:

(a) the official veterinarian has verified the facts;

(b) an inspection of all animals on the holding has been carried out;

(c) the animals to be transported have undergone a clinical examination, with negative result;

(d) each animal has been marked by ear marking or has been identified by any other approved method;

(e) the holding of destination is located either in the protection zone or within the surveillance zone.

All the necessary precautions must be taken, in particular by cleaning and disinfecting lorries after transport, to avoid the risk of spreading the agent of the disease in the course of such transport.

Article 14

1. Member States shall ensure that the competent authority takes all the necessary measures to keep at least persons established in the protection and surveillance zones informed of the restrictions in force and makes all necessary arrangements for the appropriate implementation of those measures.

2. Where, in a given region, the epizootic in question is exceptionally serious, all the additional measures to be taken by the Member States concerned shall be adopted under the procedure laid down in Article 26.

Article 15

By way of derogation from the general provisions laid down in this Directive, specific provisions relating to the control and eradication measures for each respective disease:

— are, for swine vesicular disease, set out in Annex II for swine vesicular disease,

— are, for each of the other diseases listed in Annex I, adopted by the Council, acting by a qualified majority on a proposal from the Commission.

Article 16

1. Member States shall ensure that:

(a) the disinfectants and insecticides to be used and, where appropriate, their concentrations, are officially approved by the competent authority;

(b) the cleaning, disinfection and disinsectization operations are carried out under official supervision:

— in accordance with the instructions given by the official veterinarian,

and

— in such a way as to eliminate any risk of spread or survival of the agent of the disease;

(c) on completion of the operations in (b), the official veterinarian makes sure that the measures have been carried out properly and that an appropriate period, of not less than 21 days, has elapsed to ensure that the disease in question has been completely eliminated before animals of susceptible species are re-introduced.

2. The procedures for cleaning and disinfecting an infected holding:

— are, for swine vesicular disease, those set out in Annex II,

— are determined, in the context of preparation of the specific measures for each disease listed in Annex I, in accordance with the procedure laid down in the second indent of Article 15.

Article 17

1. Member States shall ensure that in each Member State there is designated:

(a) a national laboratory with facilities and expert personnel enabling it to show at all times, and especially when the disease in question first appears, the type, sub-type and variant of the relevant virus

and to confirm results obtained in regional diagnostic laboratories;

(b) a national laboratory at which reagents used in regional diagnostic laboratories are tested.

2. The national laboratories designated for each of the diseases referred to shall be responsible for coordinating diagnostic standards and methods, and for the use of reagents.

3. The national laboratories designated for each of the diseases referred to shall be responsible for coordinating the diagnostic standards and methods laid down by each laboratory for diagnosis of the disease in question within the Member State. To this end, they:

(a) may provide diagnostic reagents to national laboratories;

(b) shall control the quality of all diagnostic reagents used in the Member State;

(c) shall periodically arrange comparative tests;

(d) shall hold isolates of the virus of the disease in question from cases confirmed in the Member State;

(e) shall ensure the confirmation of positive results obtained in regional diagnostic laboratories.

4. However, by way of derogation from paragraph 1, Member States which do not have a national laboratory competent as regards the disease in question, may use the services of a national laboratory with competence in the matter of another Member State.

5. The list of national laboratories for swine vesicular disease is set out in Annex II.

6. The national laboratories designated for each of the diseases referred to shall cooperate with the respective Community reference laboratories referred to in Article 18.

7. The detailed rules for implementing this Article shall be adopted by the Commission under the procedure laid down in Article 25.

Article 18

1. The Community reference laboratory for swine vesicular disease is indicated in Annex II.

2. The Community reference laboratories for each of the other diseases listed in Annex I shall be designated in accordance with the procedure laid down in the second indent of Article 15 in the context of preparation of the specific measures for each disease.

3. Without prejudice to Decision 90/424/EEC, and in particular Article 28 thereof, the functions and duties of the laboratories referred to in paragraphs 1 and 2 of this Article shall be those laid down in Annex III.

Article 19

1. Vaccination against the diseases listed in Annex I may not be carried out except as a supplement to control measures taken when the disease in question broke out, in accordance with the following provisions:

(a) the decision to introduce vaccination as a supplement to control measures shall be taken by the Commission, in cooperation with the Member State concerned, under the procedure laid down in Article 26;

(b) this decision shall be based on the following criteria in particular:

— the concentration of animals of the species concerned in the affected zone,

— the characteristics and composition of each vaccine used,

— the procedures for supervision of the distribution, storage and use of vaccines,

— the species and age of the animals which may or must be vaccinated,

— the areas in which vaccination may or must be carried out,

— the duration of the vaccination campaign.

2. In the case referred to in paragraph 1:

(a) the vaccination or re-vaccination of animals of susceptible species on the holdings referred to in Article 4 shall be prohibited;

(b) hyper-immune serum injection shall be prohibited.

3. In the event of recourse to vaccination, the following rules shall apply:

(a) all vaccinated animals must be identified by a clear and legible mark in accordance with a method approved by the procedure laid down in Article 25;

(b) all vaccinated animals must remain within the vaccination zone unless sent to a slaughterhouse designated by the competent authority for immediate slaughter, in which case the movement of animals may be authorized only after the official veterinarian has carried out an examination of all the susceptible animals on the holding and confirmed that none of the animals is suspected of being infected.

4. When the vaccination operations have been completed, movements of animals of susceptible species from the vaccination zone may be permitted under the procedure laid down in Article 26, after a period determined by the same procedure.

5. Member States shall inform the Commission on a regular basis, within the Standing Veterinary Committee, of progress as regards the vaccination measures.

6. However, by way of derogation from paragraph 1, the decision to introduce emergency vaccination may be taken by the Member State concerned, following notification of the Commission, provided that the fundamental interests of the Community are not affected. That decision, which must in particular take into account

the degree of concentration of the animals in certain regions, of the need to protect individual breeds and of the geographical area in which vaccination is carried out, shall forthwith be re-examined, under the procedure laid down in Article 26, by the Standing Veterinary Committee, which may decide to retain, modify or extend the measures or to bring them to an end.

Article 20

1. Each Member State shall draw up a contingency plan applicable to all the diseases listed in Annex I, specifiying the national measures to be implemented in the event of an outbreak of any of these diseases.

This plan must allow access to facilities, equipment, personnel and all other appropriate materials necessary for the rapid and efficient eradication of the outbreak.

2. The general criteria to be applied for drawing up the contingency plans are laid down in points 1 to 5 and 10 of Annex IV, with points 6 to 9 representing criteria to be adapted according to the disease concerned. Member States may however confine themselves to applying the criteria laid down in points 6 to 9 where the criteria in points 1 to 5 and 10 were already adopted when plans were submitted for the application of control measures for another disease.

3. Contingency plans drawn up in accordance with the criteria listed in Annex IV shall be submitted to the Commission:

(i) no later than six months after this Directive is brought into effect as regards swine vesicular disease;

(ii) no later than six months after implementation of the specific measures for each of the other diseases listed in Annex I.

4. The Commission shall examine the contingency plans in order to determine whether they permit the desired objective to be attained and shall suggest to the Member State concerned any amendments required in particular to ensure that they are compatible with those of the other Member States.

The Commission shall approve the plans, if necessary amended, in accordance with the procedure laid down in Article 25.

The plans may subsequently be amended or supplemented, in accordance with the same procedure, to take into account developments in the situation and the specific nature of the disease in question.

Article 21

By way of derogation from the conditions provided for in Articles 19 and 20 as regards the contingency measures to be adopted by the Member States and so as to take account of the natural, geographical constraints particular to the French Overseas Departments, the Azores and Madeira and their remoteness from the central part of the Community's territory, the Member State concerned shall be authorized to apply particular control measures specific to each of the diseases listed in Annex I to this Directive.

The Member State concerned shall, within the Standing Veterinary Committee, inform the Commission and the other Member States of the measures it has taken in this respect and in particular of the control measures implemented to ensure that animals from the territories in question or products from such animals are not dispatched to the other territories of the Community.

Following the information procedure referred to in the second paragraph, Article 20 shall apply *mutatis mutandis*.

Article 22

Commission experts may, in collaboration with the competent authorities, and in so far as is necessary to ensure uniform application of this Directive, make on-the-spot checks. In order to do this, they may check a representative percentage of holdings to see whether the competent authorities are checking that these holdings are fulfilling the requirements of this Directive. The Commission shall inform the Member States of the result of the checks carried out.

A Member State in whose territory a check is being carried out shall give all the necessary assistance to the experts in carrying out their duties.

The detailed rules for implementing this Article shall be determined in accordance with the procedure laid down in Article 25.

Article 23

1. The conditions governing the Community's financial contribution to the measures connected with the application of this Directive are laid down in Decision 90/424/EEC.

2. Article 3 of Decision 90/424/EEC shall be amended as follows:

(a) the following disease shall be added to the list of diseases specified in paragraph 1:

'haemorrhagic disease of deer';

(b) the following paragraph shall be added:

'2a. The Member State concerned shall also qualify for a Community financial contribution where, on the outbreak of one of the diseases listed in paragraph 1, two or more Member States collaborate closely to control the epidemic, particularly in carrying out an epidemiological survey and disease surveillance measures. Without prejudice to the measures provided for under the common organization of markets concerned, the specific Community financial contribution shall be decided on in accordance with the procedure laid down in Article 41.'

Article 24

1. Annexes I, III and IV shall be amended, as and when required, by the Council acting by a qualified majority on a proposal from the Commission, in particular in order to take into account developments in research and in diagnostic procedures.

2. The Commission may, in accordance with the procedure laid down in Article 25, amend Annex II, in particular in order to take into account technological and scientific developments and diagnostic methods.

Article 25

1. Where the procedure laid down in this Article is to be followed, the chairman shall, without delay, refer the matter to the Standing Veterinary Committee, either on his own initiative or at the request of the representative of a Member State.

2. The representative of the Commission shall submit to the Committee a draft of the measures to be taken. The Committee shall deliver its opinion on the draft within a time limit which the chairman may lay down according to the urgency of the matter. The opinion shall be delivered by the majority laid down in Article 148 (2) of the Treaty in the case of decisions which the Council is required to adopt on a proposal from the Commission. The votes of the representatives of the Member States within the Committee shall be weighted in the manner set out in that Article. The chairman shall not vote.

3. (a) The Commission shall adopt the measures envisaged if they are in accordance with the opinion of the Committee.

(b) If the measures envisaged are not in accordance with the opinion of the Committee, or if no opinion is delivered, the Commission shall without delay submit to the Council a proposal relating to the measures to be taken. The Council shall act by a qualified majority.

If, on the expiry of a period of three months from the date of referral to the Council, the Council has not acted, the proposed measures shall be adopted by the Commission, save where the Council has decided against the said measures by a simple majority.

Article 26

1. Where the procedure laid down in this Article is to be followed, the matter shall without delay be referred to the Standing Veterinary Committee by its chairman, either on his own initiative or at the request of a Member State.

2. Within the Committee, the votes of the Member States shall be weighted as laid down in Article 148 (2) of the Treaty. The chairman shall not vote.

3. The representative of the Commission shall submit a draft of the measures to be adopted. The Committee shall deliver its opinion on these measures within two days. Opinions shall be delivered by a majority of 54 votes.

4. (a) The Commission shall adopt the measures and shall implement them immediately, where they are in accordance with the opinion of the Committee.

(b) Where the measures envisaged are not in accordance with the opinion of the Committee, or if no opinion is delivered, the Commission shall without delay submit a proposal to the Council on the measures to be taken. The Council shall adopt the measures by a qualified majority.

If the Council has not adopted any measures within 15 days of the date on which the matter is referred to it, the Commission shall adopt the proposed measures and shall implement them immediately unless the Council has voted against the measures by a simple majority.

Article 27

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 1 October 1993. They shall forthwith inform the Commission thereof.

When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such a reference shall be laid down by the Member States.

2. Member States shall communicate to the Commission the texts of the main provisions of national law which they adopt in the field governed by this Directive.

3. The setting of the deadline for transposition into national law at 1 October 1993 shall be without prejudice to the abolition of veterinary checks at frontiers provided for in Directive 90/425/EEC.

Article 28

This Directive is addressed to the Member States.

Done at Brussels, 17 December 1992.

For the Council
The President
J. GUMMER

ANNEX I

LIST OF COMPULSORILY NOTIFIABLE DISEASES

Disease	Maximum incubation period
Rinderpest	21 days
Peste des petits ruminants	21 days
Swine vesicular disease	28 days
Bluetongue	40 days
Epizootic haemorrhagic disease of deer	40 days
Sheep and goat pox (Capripox)	21 days
Vesicular stomatitis	21 days
Teschen disease	40 days
Lumpy skin disease	28 days
Rift valley fever	30 days

ANNEX II

SPECIFIC MEASURES TO CONTROL CERTAIN DISEASES

In addition to the general provisions laid down in this Directive, the following specific provisions shall be applicable to swine vesicular disease.

1. **Description of the disease**

A disease of swine that is clinically indistinguishable from foot-and-mouth disease, causing vesicles on the snout, lips, tongue and the coronary bands of the digits. The disease varies considerably in severity and may infect a pig herd without manifesting itself by clinical lesions. The virus is able to survive for long periods outside the body even in fresh meat; it is extremely resistant to normal disinfectants and noted for its persistence and stability over a pH range from 2,5 to 12. Particularly thorough cleaning and disinfection are, therefore, necessary.

2. **Incubation period**

For the purpose of this Directive, the maximum incubation period shall be considered to be 28 days.

3. **Diagnostic procedures for the confirmation and differential diagnosis of swine vesicular disease**

The detailed methods for the collection of materials for diagnosis, the laboratory diagnostic tests, detection of antibodies and evaluation of the results of laboratory testing shall be decided in accordance with the procedure laid down in Article 25 before the Directive enters into force.

4. **Confirmation of the presence of swine vesicular disease**

By way of derogation from Article 2 (6) of this Directive, the presence of the disease shall be confirmed:

(a) on holdings on which swine vesicular disease virus is isolated either from the pigs or from the environment;

(b) on holdings containing pigs which are seropositive for swine vesicular disease provided those pigs or others on the holdings show lesions characteristic of swine vesicular disease;

(c) on holdings containing pigs which show clinical signs of disease or are seropositive, provided there is a direct epidemiological connection with a confirmed outbreak;

(d) on other herds in which seropositive pigs are detected. In the latter case the competent authority shall, before confirming the presence of the disease, undertake further investigations, in particular resampling and retesting with an interval of 28 days at least between collections of samples. The provisions of Article 4 shall continue to apply until such further investigations are completed. If subsequent investigations show no evidence of the disease, although the pigs are still seropositive, the competent authority shall ensure that the pigs tested are killed and destroyed under its supervision or slaughtered under its supervision in a slaughterhouse it has designated in its national territory.

The competent authority shall ensure that on arrival at the slaughterhouse the pigs are kept and slaughtered separately from other pigs and that their meat is exclusively used on the national market.

5. **Diagnostic laboratories**

Belgium:	Institut national de recherches vétérinaires, Groeselenberg 99, B-1180 Bruxelles.
Denmark:	Statens Veterinære Institut for Virusforskning, Lindholm.
Germany:	Bundesforschungsanstalt für Viruskrankheiten der Tiere, Paul-Ehrlich-Straße, 7400 Tübingen.

France:	Laboratoire central de recherche vétérinaire, Maisons-Alfort.
Greece:	Ινστιτούτο Λοιμωδών και Παρασιτικών Νοσημάτων, Νεαπόλεως 21, Αγία Παρασκευή·
Ireland:	Institute for Animal Health, Pirbright, Woking, Surrey.
Italy:	Istituto zooprofilattico sperimentale della Lombardia e dell'Emilia Romagna, Brescia.
Luxembourg:	Institut national de recherches vétérinaires, Groeselenberg 99, B-1180 Bruxelles.
Netherlands:	Centraal Diergeneeskundig Institut, Lelystad.
Portugal:	Laboratório Nacional de Investigação Veterinária, Lisboa.
Spain:	Laboratorio de Alta Seguridad Biológica (INIA), 28130 Madrid.
United Kingdom:	Institute for Animal Health, Pirbright, Woking, Surrey.

6. **Community reference laboratory**

AFRC Institute for Animal Health,
Pirbright Laboratory,
Ash Road,
Pirbright,
Woking,
Surrey GU24 ONF,
United Kingdom.

7. **Protection zone**

1. The size of the protection zone shall be as defined in Article 10 of this Directive.

2. In the case of swine vesicular disease, by way of derogation, the measures in Article 11 of this Directive shall be replaced by the following:

(a) all holdings within the zone having animals of susceptible species shall be identified;

(b) there shall be periodic visits to holdings having animals of susceptible species, a clinical examination of those animals including, if necessary, the collection of samples for laboratory examination; a record of visits and findings must be kept; with the frequency of the visits being proportional to the seriousness of the epizootic on those holdings at greatest risk;

(c) the movement and transport of animals of susceptible species on public or private roads, excluding the service roads of holdings, shall be prohibited. The competent authority may, however, derogate from this prohibition for the transit of animals by road and rail without unloading or stopping;

(d) however, in accordance with the procedure laid down in Article 25, an exemption may be granted for slaughter pigs coming from outside the protection zone and on their way to a slaughterhouse situated in that zone;

(e) trucks and other vehicles and equipment which are used within the protection zone to transport pigs or other livestock or material which may be contaminated (e.g. feedingstuff, manure, slurry, etc.) may not leave:

(i) a holding situated within the protection zone;

(ii) the protection zone;

(iii) a slaughterhouse,

without having been cleaned and disinfected in accordance with the procedures laid down by the competent authority. Those procedures shall provide in particular that no truck or vehicle which has been used in the transport of pigs may leave the zone without being inspected by the competent authority;

(f) pigs may not be removed from a holding in which they are kept for 21 days after completion of the preliminary cleaning and disinfection of infected holdings as laid down in Article 16; after 21 days, authorization may be given to remove pigs from the said holding:

(i) directly to a slaughterhouse designated by the competent authority, preferably within the protection or surveillance zone, provided that:

— an inspection of all the pigs on the holding has been carried out,

— a clinical examination of the pigs to be moved to slaughter has been carried out,

— each pig has been marked by ear marking or has been identified by any other approved method,

— the pigs are transported in vehicles sealed by the competent authority.

The competent authority responsible for the slaughterhouse shall be informed of the intention to send pigs to it.

On arrival at the slaughterhouse, the pigs shall be kept and slaughtered separately from other pigs. The vehicle and equipment which have been involved in the transport of the pigs shall be cleaned and disinfected before leaving the slaughterhouse.

During the pre-slaughter and *post mortem* inspection carried out at the designated slaughterhouse, the competent authority shall take into account any signs relating to the presence of the swine vesicular disease virus.

In the case of pigs slaughtered under these provisions, a statistically representative sample of bloods shall be collected. In the case of a positive result which leads to the confirmation of swine vesicular disease, the measures in 9 (3) will apply;

(ii) under exceptional circumstances, directly to other premises located within the protection zone, provided that:

— an inspection of all the pigs on the holdings has been carried out,

— a clinical examination of the pigs to be moved has been carried out, with negative results,

— each pig has been marked by ear marking or has been identified by any other approved method;

(g) fresh meat from the pigs referred to in point (f) (i) shall be marked in accordance with the Annex to Council Directive 72/461/EEC of 12 December 1972 on health problems affecting intra-Community trade in fresh meat [1], and subsequently treated in accordance with the rules laid down in Article 4 (1) of Council Directive 80/215/EEC of 22 January 1980 on animal health problems affecting intra-Community trade in meat products [2]. This must be done at an establishment designated by the competent authority.

The meat shall be sent to the said establishment on condition that the consignment is sealed before departure and remains sealed throughout the transport.

However, at the request of a Member State, accompanied by appropriate justification and in accordance with the procedure laid down in Article 25 of this Directive, specific solutions may by adopted, in particular with respect to the marking of meat and its subsequent use, and the destination of the processed products.

3. The measures in the protection zone shall continue to be applied at least until:

(a) all measures laid down in Article 16 of this Directive have been carried out;

(b) all the holdings in the zone have undergone:

(i) a clinical examination of the pigs which has revealed that they have no signs of disease suggesting the presence of swine vesicular disease; and

(ii) a serological examination of a statistical sample of the pigs without the detection of antibodies to swine vesicular disease. The programme for serological screening shall take into account the transmission of swine vesicular disease and the way in which pigs are kept. The programme shall be fixed under the procedure laid down in Article 25 of this Directive before the date of entry on which it is brought into effect.

(1) OJ No L 302, 31. 12. 1972, p. 24. Directive as last amended by Directive 91/687/EEC (OJ No L 377, 31. 12. 1991, p. 16).
(2) OJ No L 47, 21. 2. 1980, p. 4. Directive as last amended by Directive 91/687/EEC (OJ No L 377, 31. 12. 1991, p. 16).

The examination and sampling referred to in (i) and (ii) shall not take place before 28 days have elapsed after the completion of preliminary cleaning and disinfection measures at the infected holding.

4. On expiry of the period referred to in point 3, the rules applied to the surveillance zone shall also apply to the protection zone.

8. **Surveillance zone**

1. The size of the surveillance zone shall be as laid down in Article 10.

2. In the case of swine vesicular disease, the measures laid down in Article 12 shall be replaced by the following:

(a) all holdings having animals of susceptible species shall be identified;

(b) any movement of pigs other than direct to a slaughterhouse from a holding in the surveillance zone shall be permitted, provided that no pigs have moved into that holding in the previous 21 days; the owner or the person responsible for the animals must keep a record of all pig movements;

(c) the movement of pigs from the surveillance zone may be authorized by the competent authority, provided that:

— an inspection of all pigs on the holding has been carried out with the 48 hours preceding the movement,

— a clinical examination of the pigs to be moved has been carried out with negative results in the 48 hours preceding the movement,

— a serological examination of a statistical sample of the pigs to be moved has been carried out without the detection of antibodies to swine vesicular disease within the 14 days preceding the movement. However, in the case of pigs for slaughter, the serological examination may be carried out on the basis of blood samples taken at the slaughterhouse of destination designated by the competent authority in its territory. In the event of positive results confirming the presence of swine vesicular disease, the measures provided for in point 9 (3) shall be applied,

— each pig has been marked with an individual eartag or by any other approved method of identification,

— trucks and other vehicles and equipment used for the transport of the pigs must be cleaned and disinfected after each transport operation;

(d) trucks and other vehicles and equipment used for the transport of the pigs or other livestock or material that may be contaminated and which are used within the surveillance zone shall not leave that zone without having been cleaned and disinfected in accordance with the procedures laid down by the competent authority.

3. (a) The size of the surveillance zone may be amended in accordance with the provisions laid down in Article 10 (3).

(b) The measures in the surveillance zone shall be applied at least until:

(i) all the measures laid down in Article 16 have been carried out;

(ii) all the measures required in the protection zone have been carried out.

9. **General common measures**

Additional measures in the case of swine vesicular disease shall be applied as follows:

1. in cases where the presence of swine vesicular disease is officially confirmed, Member States shall ensure that, in addition to the measures laid down in Articles 4 (2) and 5 of this Directive, meat of pigs slaughtered during the period between the probable introduction of disease to the holding and the implementation of official measures is, wherever possible, traced and destroyed under official supervision in such a way as to avoid the risk of swine vesicular disease virus spreading;

2. when the official veterinarian has reason to suspect that pigs on any holding may have been contaminated as a result of the movement of any person, animal or vehicle or in any other way, pigs

on the holding shall remain under the movement restrictions referred to in Article 9 of this Directive at least until the holding has undergone:

(a) a clinical examination of the pigs, with negative results;

(b) a serological examination of a statistical sample of the pigs without the detection of antibodies to swine vesicular disease in accordance with 7 (3) (b) (ii).

The examination referred to in (a) and (b) shall not take place until 28 days have elapsed since the possible contamination of the premises as the result of the movement of persons, animals, or vehicles, or in any other way.

3. Should the presence of swine vesicular disease be confirmed in a slaughterhouse, the competent authority shall ensure that:

(a) all pigs in the slaughterhouse are slaughtered without delay;

(b) the carcases and offal of infected and contaminated pigs are destroyed under official supervision in such a way as to avoid the risk of swine vesicular disease virus spreading;

(c) cleaning and disinfection of buildings and equipment, including vehicles, take place under the supervision of the official veterinarian, in accordance with instructions laid down by the competent authority;

(d) an epidemiological enquiry is carried out in accordance with Article 8 of the Directive;

(e) no pigs are re-introduced for slaughter until at least 24 hours after completion of the cleaning and disinfection operations carried out in accordance with (c).

10. **Cleansing and disinfection of infected holdings**

In addition to the measures laid down in Article 16 of this Directive, the following measures shall also apply:

1. *Procedure for preliminary cleaning and disinfection*

(a) As soon as the carcases of the pigs have been removed for disposal, those parts of the premises in which the pigs have been housed and any other parts of the premises which have been contaminated during slaughter should be sprayed with disinfectant, approved in compliance with Article 16, at the concentration appropriate for swine vesicular disease. The disinfectant used should remain on the surface for at least 24 hours.

(b) Any tissue or blood which may have been spilled during slaughter should be carefully collected and disposed of with the carcases (slaughter should always be carried out on an impervious surface).

2. *Procedure for further cleaning and disinfection*

(a) All manure, bedding, contaminated food, etc., should be removed from the buildings, stacked and sprayed with an approved disinfectant. Slurry should be treated by a method suitable for killing the virus.

(b) All portable fittings should be removed from the premises and cleansed and disinfected separately.

(c) Grease and other dirt should be removed from all surfaces by soaking with a degreasing agent and then washing with water under pressure.

(d) A further application of disinfectant should then be made by spraying all surfaces.

(e) Sealable rooms should be fumigated.

(f) Repairs to damaged floors, walls etc. should be agreed following inspection by an official veterinarian, and carried out immediately.

(g) Completed repairs should be inspected to ensure that they have been done satisfactorily.

(h) All parts of the premises which are completely free of combustible material may be heat-treated using a flame gun.

(i) All surfaces should be sprayed with an alkaline disinfectant having a pH greater than 12,5 or any other approved disinfectant. The disinfectant should be washed off after 48 hours.

3. *Procedure for final cleaning and disinfection*

Treatment with flame gun or alkaline disinfectant (point 2 (h) or (i)) should be repeated after 14 days.

11. **Restocking of infected holdings**

In addition to the measures laid down in Article 5 (4) of this Directive, the following measures shall apply:

1. Restocking should not commence until four weeks after completion of the first full disinfection of the premises, i.e. step 3 of the cleaning and disinfection procedures.

2. The re-introduction of pigs shall take account of the type of farming practised on the holding and must conform to one of the following procedures:

(a) in the case of outdoor pig holdings, restocking shall start with the introduction of a limited number of sentinel piglets which have been checked and found negative for the presence of antibodies against swine vesicular disease virus. The sentinel piglets shall be placed, in accordance with the requirements of the competent authority, throughout the infected holding and will be examined clinically 28 days after having been placed on the holding, and sampled for serological testing.

If none of the piglets shows clinical evidence of swine vesicular disease nor has developed antibodies against the virus of the disease, full restocking may take place;

(b) for all other forms of rearing, the re-introduction of pigs shall take place either in accordance with the measures provided for in paragraph (a) or by full restocking, provided that:

— all the pigs arrive within a period of eight days and come from holdings situated outside areas restricted as a result of swine vesicular disease, and are seronegative,

— no pig may leave the holding for a period of 60 days after the arrival of the last pigs,

— the repopulated herd is subjected to a clinical and serological examination in accordance with the requirements of the competent authority. That examination may be carried out at the earliest 28 days after the arrival of the last pigs.

12. By 1 October 1997 at the latest, the Commission shall submit to the Council a report drawn up on the basis of an opinion from the Scientific Veterinary Committee on developments in research and diagnosis procedures as well as technical and scientific developments regarding swine vesicular disease, together with any appropriate proposals in the light of that report's findings. The Council shall act on such proposals by a qualified majority not later than six months after their submission.

ANNEX III

COMMUNITY REFERENCE LABORATORIES FOR THE DISEASES CONCERNED

The functions and duties of the Community reference laboratories for the diseases concerned shall be:

1. to coordinate, in consultation with the Commission, the methods employed in the Member States for diagnosing the disease concerned, specifically by:

   (a) typing, storing and supplying strains of the virus of the relevant disease for serological tests and the preparation of antisera;

   (b) supplying standard sera and other reference reagents to the national reference laboratories in order to standardize the tests and reagents used in the Member States;

   (c) building up and retaining a collection of virus strains and isolates of the relevant disease;

   (d) organizing periodic comparative tests of diagnostic procedures at Community level;

   (e) collecting and collating data and information on the methods of diagnosis used and the results of tests carried out in the Community;

   (f) characterizing isolates of the virus of the relevant disease by the most up-to-date methods to allow greater understanding of the epizootiology of the disease;

   (g) keeping abreast of developments in the surveillance, epizootiology and prevention of the relevant disease throughout the world;

   (h) retaining expertise on the relevant disease virus and other pertinent viruses to enable rapid differential diagnosis;

   (i) acquiring a thorough knowledge of the preparation and use of the products of veterinary immunology used to eradicate and control the relevant disease;

2. to assist actively in the diagnosis of outbreaks of the relevant disease in Member States by receiving virus isolates for confirmatory diagnosis, characterization and epizootiological studies;

3. to facilitate the training or retraining of experts in laboratory diagnosis with a view to the harmonization of diagnostic techniques throughout the Community.

ANNEX IV

MINIMUM CRITERIA FOR THE CONTINGENCY PLANS

Contingency plans shall meet at least the following criteria:

1. the establishment of a crisis centre on a national level, which shall coordinate all control measures in the Member State concerned;
2. a list shall be provided of local disease control centres with adequate facilities to coordinate the disease control measures at a local level;
3. detailed information shall be given on the staff involved in control measures, their skills and their responsibilities;
4. each local disease control centre must be able to contact rapidly persons/organizations which are directly or indirectly involved in an outbreak;
5. equipment and materials shall be available to carry out the disease control measures properly;
6. detailed instructions shall be provided on action to be taken on suspicion and confirmation of infection or contamination, including means of disposal of carcases;
7. training programmes shall be established to maintain and develop skills in field and administrative procedures;
8. diagnostic laboratories must have facilities for *post mortem* examination, the necessary capacity for serology, histology, etc., and must maintain the skills for rapid diagnosis. Arrangements must be made for rapid transportation of samples;
9. details shall be provided of the quantity of vaccine against the disease in question estimated to be required in the event of recourse to emergency vaccination;
10. provisions shall be made to ensure the legal powers necessary for the implementation of the contingency plans.

GF-TADs
GLOBAL FRAMEWORK FOR THE PROGRESSIVE CONTROL OF TRANSBOUNDARY ANIMAL DISEASES

Food and Agriculture Organization of the United Nations

WORLD ORGANISATION FOR ANIMAL HEALTH

Standing Group of Experts on Lumpy Skin Disease in South East Europe
under the GF-TADs umbrella

SGE LSD9

Athens, 16-17 October 2019

Report for [Turkey]

[Dr. Fahriye SARAÇ]

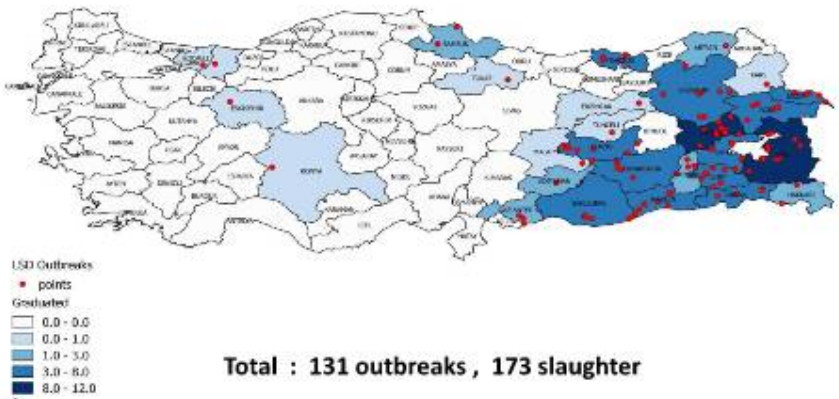
Lumpy Skin Disease occurrence in 2019

LSD outbreaks reported in 2019 *(From* **01/01/2019** *until --/--/2019)*			
Region	**Number of outbreaks**	**Period of occurrence**	
		From *(date of 1st outbreak)*	**To** *(date of latest outbreak)*
Thrace	0	-	-
Anatolia	131	04 January	09 October
TOTAL	131		

Lumpy Skin Disease occurrence in 2019

Map of LSD outbreaks in 2019

LSD Outbreaks in Turkey by October 2019



Total : 131 outbreaks , 173 slaughter

Lumpy Skin Disease Vaccination in 2019

Type of vaccine used *(i.e. homologous/heterologous, if heterologous please provide dose per animal used)*	**Heterolog vaccine Sheep and Goat Pox Bakırköy strain 5 doses**
Number of doses used	15.659.718
Source of vaccines *(e.g. national purchase , EU vaccine bank, other)*	National purchase
Mode of vaccination *(mandatory / voluntary)*	Mandatory
Area of vaccination : *(e.g. whole country, ring vaccination around outbreaks , specific regions – explain if needed)*	Whole country
Comments – other info *(if any)*	

Lumpy Skin Disease Vaccination in 2019

LSD vaccination in 2019 *(From* **01/01/2019** *until* **--/--/2019***)*					
Region	**Total cattle**		**% vaccination coverage**	**Period of vaccination**	
	Present	**Vaccinated**		**From** *(start date)*	**To** *(end date)*
Thrace	639.000	632.839	99,03	1 January	1 September
Anatolia	16.085.155	15.026.879	93,42	1 January	1 September
TOTAL	16.724.155	15.659.718	93,63		

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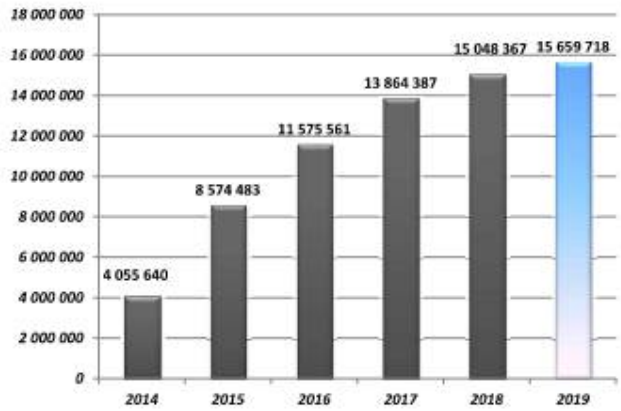
Number of Vaccinated Cattles



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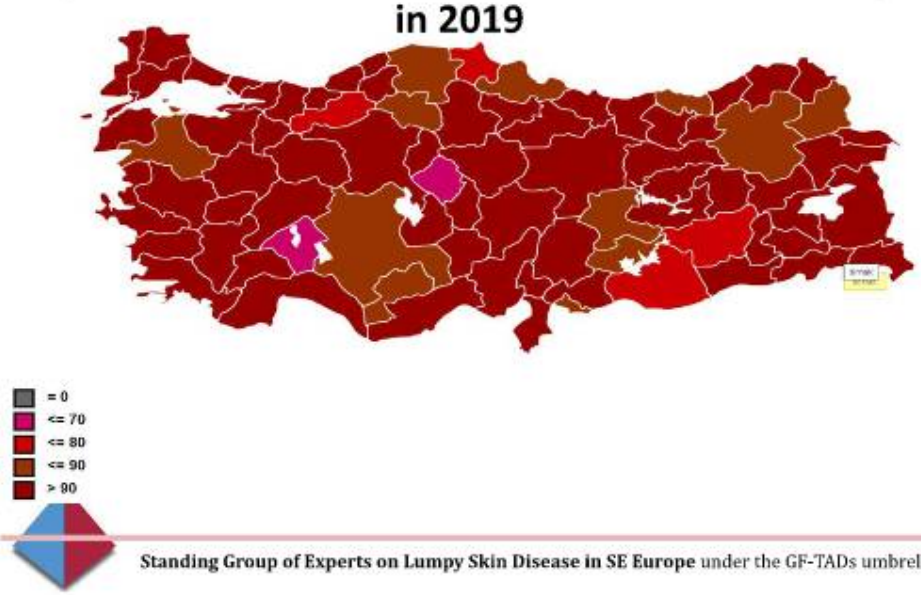
Lumpy Skin Disease Vaccination in 2019

Map of LSD vaccination areas and vaccine coverage in 2019



LSD Control Program in 2019

- LSD control strategy of Turkey is based on Veterinary Services, Plant Health, Food and Feed law no: 5996 and in compliance with Council Directive 92/119/EEC except slaughtering.
- LSD is compulsory notifiable disease in Turkey.
- Restriction, Quarantine, Ring Vaccination, Sampling, Diagnosis Control of animal movements Cleaning and Disinfection in outbreak areas, Insect control, Vaccination in outbreak area.
- National Reference Laboratory is Pendik Veterinary Control Institute
- SGP vaccine (Bakırkoy strain, local strain) is used for LSD that produced by PVCI and two private companies.
- Positive laboratory result and clinically symptomatic animals in outbreak zone compensated to the owners (100% of the animal value)

LSD Control Program in 2019

- The vaccination campaign carried out between 1 January – 1 September
- Due to different climatic conditions of the regions, each province directorate organised the time of own vaccination program(because of the differences between their climate conditions, geographical status and husbandry system)
- All cattles older than 3 months were vaccinated with 5 times sheep and goat pox vaccine (Bakirkoy Strain)

Lumpy Skin Disease surveillance in 2019

Type of surveillance implemented

1. **Passive Clinical Surveillance**
   Clinical examination and sampling after notification of a suspicion on LSD by farmers/private vets

2. **Active Clinical Surveillance in Outbreak Areas**
   Clinical examination in at least 10 km diameter zone (protection and surveillance zone) in the case of an LSD confirmation

Lumpy Skin Disease surveillance in 2019

Type of surveillance implemented

3. **Risk Based Surveillance Program in Thrace Region**

   Statistical target: to detect a herd prevalence of 5% and prevalence within the herds of 5% LSD for detecting the clinical signs among susceptible animals of each epidemiological unit with a 95% level of confidence).

   Number of epi-units to be sampled distributed propotion number of total number of villages per province by expected prevalance;

   Çanakkale:33;
   Istanbul:43;
   Edirne:53;
   Kırklareli:52 and
   Tekirdağ:55)

In total 236 epi units, clinical surveillance is conducted in every cycle. 4 cycles are realized a year.

Lumpy Skin Disease surveillance in 2019

	Number examined	Outcome
Number of LSD suspicions investigated	214	131 positive results
Number of holdings subject to LSD clinical examination	-709 holdings in Thrace (RBS) -64.660 holdings in outbreaks zone	Samples were taken from suspected animals of LSD. No positive results found
Number of animals subject to LSD clinical examination	-42.480 animals in Thrace (RBS) -581.940 animals in outbreaks zone	Samples were taken from suspected animals of LSD. No positive results found
Number of Samples subject to LSD serology *(e.g. ELISA , SNT other)*	-	-
Number of Samples subject to LSD virological tests (e.g. PCR, other)	214	131
Comments – other info *(if any)*		

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Lumpy Skin Disease planning for 2020

(e.g. LSD vaccination/surveillance , if any)

Ongoing Projects

- Detection of vectorborn diseases and creation of early warning system in Turkey
- Addressing the dual emerging threats of African Swine Fever and Lumpy Skin Disease in Europe DEFEND (EU Project)
- Enhancing national capabilities for early and rapid detection of priority vector borne diseases of animals (including zoonoses) by means of molecular diagnostic tools (IAEA Project)
- Control and prevention of Lumpy Skin Disease (LSD) (EU funded IPA Project)

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Lumpy Skin Disease planning for 2020

(e.g. LSD vaccination/surveillance , if any)

IPA Project «Control and prevention of Lumpy Skin Disease (LSD)» financed by EU

Contracts of the project:

- 1- Technical Asistance for Control and Prevention of Lumpy Skin Disease
- 2- Supply of Vaccines for Control and Prevention of Lumpy Skin Disease
- 3- Supply of Laboratory Equipment and Light Traps for Control and Prevention of Lumpy Skin Disease

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Lumpy Skin Disease planning for 2020

(e.g. LSD vaccination/surveillance , if any)

1- Technical Asistance for Control and Prevention of Lumpy Skin Disease

Targets :

- a) Improvement of diagnostic methods for LSD
- b) Capacity building of MoAF staff via trainings
- c) To raise the livestock farmers' awareness on LSD
- d) To develop Animal Health Strategy of MoAF for LSD

Lumpy Skin Disease planning for 2020

(e.g. LSD vaccination/surveillance , if any)

2- Supply of Vaccines for Control and Prevention of Lumpy Skin Disease

- Target : To supply both homologous and heterologous vaccine for 3 years (2020-2022)

Lumpy Skin Disease planning for 2020

(e.g. LSD vaccination/surveillance , if any)

3-Supply of Laboratory Equipment and Light Traps for Control and Prevention of Lumpy Skin Disease

Target :

- a) To increase the equipment capacity of diagnostic laboratories
- b) To supply light traps to investigate the vector activity in the country

THANK YOU

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GF-TADs
GLOBAL FRAMEWORK FOR THE PROGRESSIVE CONTROL OF TRANSBOUNDARY ANIMAL DISEASES

Standing Group of Experts on Lumpy Skin Disease in Europe
under the GF-TADs umbrella

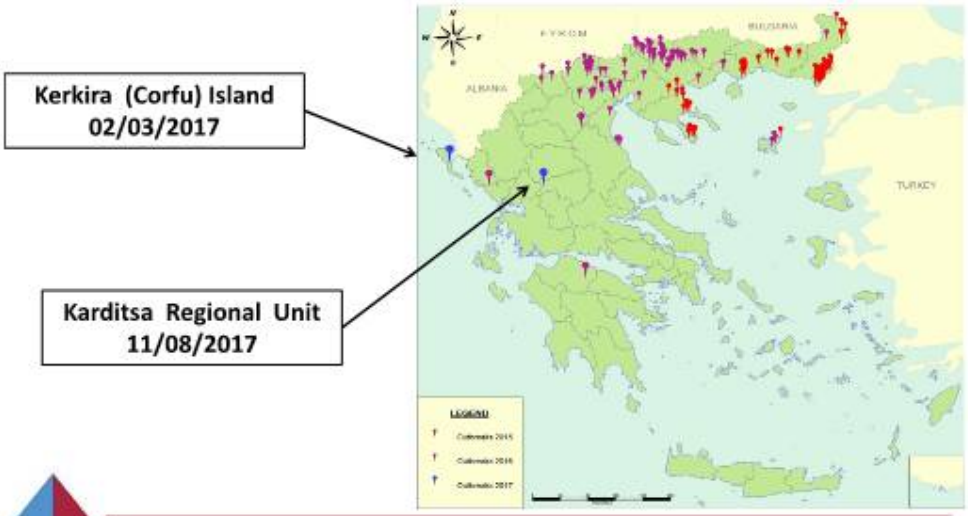
Greece

Chrysoula Dile, Sotiria-Eleni Antoniou

Fifth meeting (SGE LSD5)
Budva, Montenegro, 19-20 October 2017

LSD epidemiology – evolution since the SG4

January – October 2017 : 2 outbreaks



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LSD epidemiology – evolution since the SG4

January – October 2017 : 2 outbreaks

Kerkira (Corfu) Island

Date of confirmation 02/03/2017
Date of depopulation 26/03/2017
Dairy herd of 28 animals
Unvaccinated herd
Morbidity within the herd 42%
Mortality within the herd 10%

Protection zone: 10 km radius
Surveillance zone: the total island
Vaccination started on 25/02/2017

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LSD epidemiology – evolution since the SG4

January – October 2017 : 2 outbreaks

Karditsa Regional Unit
Vaccination coverage appr. 100% at the time of confirmation

Date of confirmation 11/08/2017
Dates of depopulation 17 & 22/08/2017
Beef herd of 206 animals
Free grazing on the mountain
Indigenous breed with horns
Vaccinated herd (23/12/2016 & 19/05/2017)
Morbidity in the herd 7,2%
Mortality in the herd 1,4 %
Protection zone: 3 km radius
Surveillance zone: 25 Km radius

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Control measures applied in case of outbreaks

Legal Framework for measures and actions
European Law: Directive 92/119
National Law : Presidential Decree: 138/1995
National Contingency Plan : Ministerial Decision 258933/18-8-2008

Measures according to Dir. 92/119
- Total Stamping out
- Zoning: protection at least 3km
  surveillance at least 25km
- Cleansing and Disinfection
- Vaccination extended also to the islands in 2017

Measures according to Nat. Cont. Plan
Extends measures outside zones to the rest Regional Unit as long as zones existing:
- Prohibition of animal movements and trade activities
- Permission of direct slaughter to the slaughterhouses within the RU but outside the zones

Control measures and activities applied in total Greek territory

➢ **Official Certification** by the Local Veterinary Authorities for bovine animals movements **within the Country,** presupposes clinical examination.

➢ **Clinical surveillance for LSD** in the framework of veterinary activities:
- Control and Eradication programs (Brucellosis, Enzootic Leucosis, Tuberculosis) mainly carried out by official vets:
  in 2016 approx. 78.000 bovines
- Slaughterhouses: Ante mortem and post mortem inspection carried out by official veterinarians
  in 2016 approx. 89.000 bovine animals from Greek herds
- LSD vaccination , 66% carried out by official vets:
  in 2016 approx 590.000 bovines vaccinated

➢ **Simulation Exercise** (17 July 2017) at **National level** on horizontal activities of the CPs: **Mapping, Zoning, Outbreak Notification, Animal traceability**

Vaccination Coverage in Greece

Greece uses directly data extracted from **2 National Data Bases**: the database on **Bovine Population (calves included)** and the database **on LSD Vaccination.**

a) **Database on Bovine Population:** The number of animals registered is higher than the existing .
b) **Database on Vaccination :** The number of vaccinations registered is less than the real vaccinated animals due to the delay on registration of vaccination.
c) Total Bovine population includes also, **calves younger than 4 months** and **younger than 6 months** coming from vaccinated cattle which are not vaccinated and they are not included in the number of vaccinated animals. Estimated **4%** and **6,5%** of the total bovine population respectively.

Vaccination coverage is underestimated

Vaccination Coverage in Greece (Octob. 2017)

Based on data extracted directly from databases :

- the current population in Greece, in mainland (without the islands) is **675. 311 bovines** (calves included)
- **73%** of these animals have been vaccinated within the last 12 months and **remain with in the immunity period.**
- **4%** and **6,5%** of the total bovine population are the unvaccinated calves **younger than 4 months** or **younger than 6 months** respectively **born from vaccinated cattle**

Coverage = 73% + 4 % or 6,5 % (unvaccinated calves from vaccinated cattle)

=

77% to 79,5 %

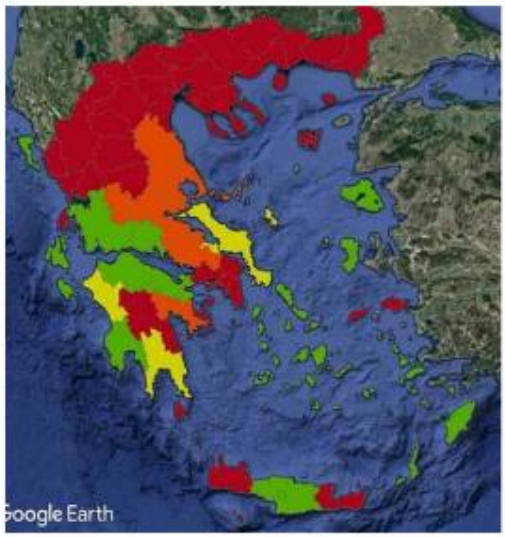
Vaccination Coverage in Greece (Oct. 2017)

Red Area > 90% , represents :
57 % of Regional Units
64 % of Bovine Population

Orange Area 80-89% , represents :
11 % of Regional Units
16 % of Bovine Population

Yellow Area 70-79%, represents:
6% of Regional Units
3% of Bovine Population

Green Area 50- 69%, represents:
26 % of Regional Units
17 % of Bovine Population



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Vaccination Campaign (Octob. 2017)

Vaccination Campaign	Regional Units	Bovine Population
3rd in progress	17%	33 %
2nd completed or in progress	33%	44%
1st completed	22%	5 %
1st Initial in progress	28%	18%

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Vaccination plan for 2018

➢ **Vaccination will be continued during 2018 in total Greek Territory including islands**

➢ **Central procurement of the total amount of the vaccines needed, by the Ministry of Rural Development and Food**

➢ **Preparation for the procurements for the 2018 :**

- the beginning of 2018 will be covered by the vaccines delivered by the end of October 2017
- **105.000 doses** will be delivered in March 2018 (the process has been completed within 2017)
- **700.000 doses** the procurement will take place through **an international competition** starting at the beginning of 2018 estimated time for delivery May 2018.

➢ **Vaccines from EU BANK may be needed :**
- **at the begging of 2018**
- **May –June 2018 in case of delay of the International Competition**

HELLENIC REPUBLIC
MINISTRY OF RURAL DEVELOPMENT AND FOOD
DIRECTORATE GENERAL OF SUSTAINABLE ANIMAL PRODUCTION & VETERINARY MEDICINE
ANIMAL HEALTH DIRECTORATE
DEPARTMENT OF INFECTIOUS AND PARASITIC DISEASES

Thank you for your attention

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牛结节性皮肤病防治技术规范

牛结节性皮肤病(Lumpy skin disease, LSD)是由痘病毒科山羊痘病毒属牛结节性皮肤病病毒引起的牛全身性感染疫病,临床以皮肤出现结节为特征,该病不传染人,不是人兽共患病。世界动物卫生组织(OIE)将其列为法定报告的动物疫病,农业农村部暂时将其作为二类动物疫病管理。

为防范、控制和扑灭牛结节性皮肤病疫情,依据《中华人民共和国动物防疫法》《重大动物疫情应急条例》《国家突发重大动物疫情应急预案》等法律法规,制定本规范。

1. 适用范围

本规范规定了牛结节性皮肤病的诊断、疫情报告和确认、疫情处置、防范等防控措施。

本规范适用于中华人民共和国境内与牛结节性皮肤病防治活动有关的单位和个人。

2. 诊断

2.1 流行病学

2.1.1 传染源

感染牛结节性皮肤病病毒的牛。感染牛和发病牛的皮肤结

节、唾液、精液等含有病毒。

2.1.2 传播途径

主要通过吸血昆虫(蚊、蝇、蠓、虻、蜱等)叮咬传播。可通过相互舔舐传播,摄入被污染的饲料和饮水也会感染该病,共用污染的针头也会导致在群内传播。感染公牛的精液中带有病毒,可通过自然交配或人工授精传播。

2.1.3 易感动物

能感染所有牛,黄牛、奶牛、水牛等易感,无年龄差异。

2.1.4 潜伏期

《OIE 陆生动物卫生法典》规定,潜伏期为 28 天。

2.1.5 发病率和病死率

发病率可达 2% ~45%。病死率一般低于 10%。

2.1.6 季节性

该病主要发生于吸血虫媒活跃季节。

2.2 临床症状

临床表现差异很大,跟动物的健康状况和感染的病毒量有关。体温升高,可达 41℃,可持续 1 周。浅表淋巴结肿大,特别是肩前淋巴结肿大。奶牛产奶量下降。精神消沉,不愿活动。眼结膜炎,流鼻涕,流涎。发热后 48 小时皮肤上会出现直径 10 ~50mm 的结节,以头、颈、肩部、乳房、外阴、阴囊等部位居多。结节可能破溃,吸引蝇蛆,反复结痂,迁延数月不愈。口腔黏膜出现水泡,继而溃

破和糜烂。牛的四肢及腹部、会阴等部位水肿，导致牛不愿活动。公牛可能暂时或永久性不育。怀孕母牛流产，发情延迟可达数月。

牛结节性皮肤病与牛疱疹病毒病、伪牛痘、疥螨病等临床症状相似，需开展实验室检测进行鉴别诊断。

2.3 病理变化

消化道和呼吸道内表面有结节病变。淋巴结肿大，出血。心脏肿大，心肌外表充血、出血，呈现斑块状瘀血。肺脏肿大，有少量出血点。肾脏表面有出血点。气管粘膜充血，气管内有大量粘液。肝脏肿大，边缘钝圆。胆囊肿大，为正常2～3倍，外壁有出血斑。脾脏肿大，质地变硬，有出血状况。胃粘膜出血。小肠弥漫性出血。

2.4 实验室检测

2.4.1 抗体检测

采集全血分离血清用于抗体检测，可采用病毒中和试验、酶联免疫吸附试验等方法。

2.4.2 病原检测

采集皮肤结痂、口鼻拭子、抗凝血等用于病原检测。

2.4.2.1 病毒核酸检测：可采用荧光聚合酶链式反应、聚合酶链式反应等方法。

2.4.2.2 病毒分离鉴定：可采用细胞培养分离病毒、动物回归试验等方法。

病毒分离鉴定工作应在中国动物卫生与流行病学中心(国家外来动物疫病研究中心)或农业农村部指定实验室进行。

3. 疫情报告和确认

按照动物防疫法和农业农村部规定,对牛结节性皮肤病疫情实行快报制度。任何单位和个人发现牛出现疑似牛结节性皮肤病症状,应立即向所在地畜牧兽医主管部门、动物卫生监督机构或动物疫病预防控制机构报告,有关单位接到报告后应立即按规定通报信息,按照"可疑疫情—疑似疫情—确诊疫情"的程序认定疫情。

3.1 可疑疫情

县级以上动物疫病预防控制机构接到信息后,应立即指派两名中级以上技术职称人员到场,开展现场诊断和流行病学调查,符合牛结节性皮肤病典型临床症状的,判定为可疑病例,并及时采样送检。

县级以上地方人民政府畜牧兽医主管部门根据现场诊断结果和流行病学调查信息,认定可疑疫情。

3.2 疑似疫情

可疑病例样品经县级以上动物疫病预防控制机构或经认可的实验室检出牛结节性皮肤病病毒核酸的,判定为疑似病例。

县级以上地方人民政府畜牧兽医主管部门根据实验室检测结果和流行病学调查信息,认定疑似疫情。

3.3 确诊疫情

疑似病例样品经省级动物疫病预防控制机构或省级人民政府畜牧兽医主管部门授权的地市级动物疫病预防控制机构实验室复检，其中各省份首例疑似病例样品经中国动物卫生与流行病学中心（国家外来动物疫病研究中心）复核，检出牛结节性皮肤病病毒核酸的，判定为确诊病例。

省级人民政府畜牧兽医主管部门根据确诊结果和流行病学调查信息，认定疫情；涉及两个以上关联省份的疫情，由农业农村部认定疫情。

在牛只运输过程中发现的牛结节性皮肤病疫情，由疫情发现地负责报告、处置，计入牛只输出地。

相关单位在开展疫情报告、调查以及样品采集、送检、检测等工作时，应及时做好记录备查。疑似、确诊病例所在省份的动物疫病预防控制机构，应按疫情快报要求将疑似、确诊疫情及其处置情况、流行病学调查情况、终结情况等信息按快报要求，逐级上报至中国动物疫病预防控制中心，并将样品和流行病学调查信息送中国动物卫生与流行病学中心。中国动物疫病预防控制中心依程序向农业农村部报送疫情信息。

牛结节性皮肤病疫情由省级畜牧兽医主管部门负责定期发布，农业农村部通过《兽医公报》等方式按月汇总发布。

4. 疫情处置

4.1 临床可疑和疑似疫情处置

对发病场(户)的动物实施严格的隔离、监视,禁止牛只及其产品、饲料及有关物品移动,做好蚊、蝇、蠓、虻、蜱等虫媒的灭杀工作,并对隔离场所内外环境进行严格消毒。必要时采取封锁、扑杀等措施。

4.2 确诊疫情处置

4.2.1 划定疫点、疫区和受威胁区

4.2.1.1 疫点:相对独立的规模化养殖场(户),以病牛所在的场(户)为疫点;散养牛以病牛所在的自然村为疫点;放牧牛以病牛所在的活动场地为疫点;在运输过程中发生疫情的,以运载病牛的车、船、飞机等运载工具为疫点;在市场发生疫情的,以病牛所在市场为疫点;在屠宰加工过程中发生疫情的,以屠宰加工厂(场)为疫点。

4.2.1.2 疫区:疫点边缘向外延伸3公里的区域。对运输过程发生的疫情,经流行病学调查和评估无扩散风险,可以不划定疫区。

4.2.1.3 受威胁区:由疫区边缘向外延伸10公里的区域。对运输过程发生的疫情,经流行病学调查和评估无扩散风险,可以不划定受威胁区。

划定疫区、受威胁区时,应根据当地天然屏障(如河流、山脉

等)、人工屏障(道路、围栏等)、野生动物栖息地、媒介分布活动等情况,以及疫情追溯调查结果,综合评估后划定。

4.2.2 封锁

必要时,疫情发生所在地县级以上兽医主管部门报请同级人民政府对疫区实行封锁。跨行政区域发生疫情时,由有关行政区域共同的上一级人民政府对疫区实行封锁,或者由各有关行政区域的上一级人民政府共同对疫区实行封锁。上级人民政府可以责成下级人民政府对疫区实行封锁。

4.2.3 对疫点应采取的措施

4.2.3.1 扑杀并销毁疫点内的所有发病和病原学阳性牛,并对所有病死牛、被扑杀牛及其产品进行无害化处理。同群病原学阴性牛应隔离饲养,采取措施防范吸血虫媒叮咬,并鼓励提前出栏屠宰。

4.2.3.2 实施吸血虫媒控制措施,灭杀饲养场所吸血昆虫及幼虫,清除孳生环境。

4.2.3.3 对牛只排泄物、被病原污染或可能被病原污染的饲料和垫料、污水等进行无害化处理。

4.2.3.4 对被病原污染或可能被病原污染的物品、交通工具、器具圈舍、场地进行严格彻底消毒。出入人员、车辆和相关设施要按规定进行消毒。

4.2.4 对疫区应采取的措施

4.2.4.1 禁止牛只出入，禁止未经检疫合格的牛皮张、精液等产品调出。

4.2.4.2 实施吸血虫媒控制措施，灭杀饲养场所吸血昆虫及幼虫，清除孳生环境。

4.2.4.3 对牛只养殖场、牧场、交易市场、屠宰场进行监测排查和感染风险评估，及时掌握疫情动态。对监测发现的病原学阳性牛只进行扑杀和无害化处理，同群牛只隔离观察。

4.2.4.4 对疫区实施封锁的，还应在疫区周围设立警示标志，在出入疫区的交通路口设置临时检查站，执行监督检查任务。

4.2.5 对受威胁区应采取的措施

4.2.5.1 禁止牛只出入和未经检疫合格的牛皮张、精液等产品调出。

4.2.5.2 实施吸血虫媒控制措施，灭杀饲养场所吸血昆虫及幼虫，清除孳生环境。

4.2.5.3 对牛只养殖场、牧场、交易市场、屠宰场进行监测排查和感染风险评估，及时掌握疫情动态。

4.2.6 紧急免疫

疫情所在县和相邻县可采用国家批准的山羊痘疫苗（按照山羊的5倍剂量），对全部牛只进行紧急免疫。

4.2.7 检疫监管

扑杀完成后30天内，禁止疫情所在县活牛调出。各地在检疫监督过程中，要加强对牛结节性皮肤病临床症状的查验。

4.2.8 疫情溯源

对疫情发生前30天内，引入疫点的所有牛只及牛皮张等产品进行溯源性调查，分析疫情来源。当有明确证据表明输入牛只存在引入疫情风险时，对输出地牛群进行隔离观察及采样检测，对牛皮张等产品进行消毒处理。

4.2.9 疫情追踪

对疫情发生30天前至采取隔离措施时，从疫点输出的牛及牛皮张等产品的去向进行跟踪调查，分析评估疫情扩散风险。对有流行病学关联的牛进行隔离观察及采样检测，对牛皮张等产品进行消毒处理。

4.2.10 解除封锁

疫点和疫区内最后一头病牛死亡或扑杀，并按规定进行消毒和无害化处理30天后，经疫情发生所在地的上一级畜牧兽医主管部门组织验收合格后，由所在地县级以上畜牧兽医主管部门向原发布封锁令的人民政府申请解除封锁，由该人民政府发布解除封锁令，并通报毗邻地区和有关部门，报上一级人民政府备案。

4.2.11 处理记录

对疫情处理的全过程必须做好完整详实的记录，并归档。

5. 防范措施

5.1 边境防控

各边境地区畜牧兽医部门要积极配合海关等部门，加强边境地区防控，坚持内防外堵，切实落实边境巡查、消毒等各项防控措施。与牛结节性皮肤病疫情流行的国家和地区接壤省份的相关县（市）建立免疫隔离带。

5.2 饲养管理

5.2.1 牛的饲养、屠宰、隔离等场所必须符合《动物防疫条件审查办法》规定的动物防疫条件，建立并实施严格的卫生消毒制度。

5.2.2 养牛场（户）应提高场所生物安全水平，实施吸血虫媒控制措施，灭杀饲养场所吸血昆虫及幼虫，清除孳生环境。

5.3 日常监测

充分发挥国家动物疫情测报体系的作用，按照国家动物疫病监测与流行病学调查计划，加强对重点地区重点环节监测。加强与林草等有关部门合作，做好易感野生动物、媒介昆虫调查监测，为牛结节性皮肤病风险评估提供依据。

5.4 免疫接种

必要时，县级以上畜牧兽医主管部门提出申请，经省级畜牧兽医主管部门批准，报农业农村部备案后采取免疫措施。实施产地检疫时，对已免疫的牛只，应在检疫合格证明中备注免疫日期、疫

苗批号、免疫剂量等信息。

5.5 出入境检疫监管

各地畜牧兽医部门要加强与海关、边防等有关部门协作，加强联防联控，形成防控合力。严禁进口来自牛结节性皮肤病疫情国家和地区的牛只及其风险产品，对非法入境的牛只及其产品按相应规定处置。

5.6 宣传培训

加强对各级畜牧兽医主管部门、动物疫病预防控制和动物卫生监督机构工作人员的技术培训，加大牛结节性皮肤病防控知识宣传普及力度，加强对牛只养殖、经营、屠宰等相关从业人员的宣传教育，增强自主防范意识，提高从业人员防治意识。

抄送：中国动物疫病预防控制中心，中国兽医药品监察所，中国动物卫生与流行病学中心，中国农业科学院兰州兽医研究所。

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Lumpy Skin Disease

Control Strategy for Great Britain

June 2018

Introduction

1. This document sets out the disease control measures and policies government would consider and implement if Lumpy Skin Disease (LSD) was suspected or confirmed in Great Britain (GB), within the remit of national and European law.

2. LSD is a compulsory notifiable disease in GB under the Specified Diseases (Notification) Order 1996 (Si No.1996/2628). It is also notifiable to the European Union (EU) and Office International des Epizooties (OiE – also known as the World Animal Health Organisation). The disease affects cattle and water buffalo and belongs to a genus of viruses called Capripox. The virus is not transmissible to humans.

3. This strategy has been produced jointly by the Scottish and Welsh Governments and Defra, and in consultation with experts and industry stakeholders.

4. Responsibility for managing an outbreak in the countries that form GB falls to the respective governments. However as LSD could spread irrespective of geographical and political boundaries, the approach to movement controls, restrictions, vaccination and managing an outbreak seeks complementary, consistent and co-ordinating measures across the whole of GB. The United Kingdom Contingency Plan for Exotic Notifiable Diseases of Animals sets out the structures, roles, and responsibilities for a rapid and effective response to animal disease.

5. The disease control strategy includes good biosecurity and animal care, responsible sourcing of animals, monitoring of the disease situation in Europe and internationally, and having in place appropriate risk based import conditions and testing.

6. The control measures set out in legislation and this control strategy are aimed at preventing disease spread through managing risks and taking appropriate evidence based action at the right time, and eradicating disease on infected holdings. This control strategy is for government, operational partners, industry, and anyone keeping LSD susceptible animals.

The disease

7. LSD has the potential for rapid spread and production loss to the cattle industry, and is of major importance to the international trade of livestock.

8. The disease is known to affect bovine animals, particularly cattle (*Bos taurus* and *Bos indicus*) and water buffalo (*Bubalus bubalis*)[1]. American bison (*bison bison*) and european bison (*bison bonasus*) are potentially susceptible to the disease. The impacts of the disease can be significant and include damage to hides, loss of milk and beef production, abortion in females, sterility (which can be permanent in males), and death. Some infected animals do not show clinical signs but may still be viraemic and have the potential to transmit the virus (subclinical infection).

9. LSD has been endemic in North Africa and the Middle East for several years, but since 2015 has rapidly spread throughout the Balkan and Caucasus regions, with major outbreaks occurring in 2015 and 2016 in the EU member states of Greece and Bulgaria, and several other Balkan countries.

Signs of infection

10. The incubation period of the disease is usually around 6-9 days. The morbidity varies from 5-45%[2] but is typically around 10%. It is therefore possible that only a few animals in the herd will show clinical signs, which can range from mild to severe. Some infected animals may not show any clinical signs (subclinical infection).

11. The following clinical signs may be exhibited:

- Fever and malaise, followed by
- One or more firm nodules (lumps) which can appear anywhere on the body but are commonly found on the head, sides, udders and genitalia;
- Ulcers in the nose and digestive tract;
- Increased salivation and nasal discharge;
- Generalised inflammation of the lymph nodes (lymphadenopathy);
- Decreased milk yield in lactating cattle;
- Abortion in pregnant animals;
- Temporary sterility in cows;
- Temporary or permanent sterility in bulls;
- Death in some clinically infected animals.

[1] Water buffalo are present in the UK in low numbers with some farmed animals and the remainder in licensed zoological collections.

[2] From the OIE technical disease card:
http://www.OIE.int/fileadmin/Home/eng/Media_Center/docs/pdf/Posters/EN_Poster_LSD_2016.pdf

Transmission

12. The main route of transmission from one animal to another is believed to be through blood sucking insects, which act as vectors when exposed to the virus whilst feeding on skin including scabs and nodules where the virus is most concentrated.

13. There are many vectors that may be capable of spreading LSD present in the UK, including stable flies (*stomoxys spp*), mosquitoes (*culex spp*) and horse flies (*tabanidae*), though no specific responsible vector has been specified to date. Tick species have also been implicated in transmission of LSD and there is some debate over the possibility of vertical transmission within tick species.

14. The vectors capable of transmitting the disease are more prevalent in the UK during warmer weather. Therefore, establishment of the disease and localised outbreaks are considered more likely if the primary case occurs throughout warmer periods. If the primary case occurs in the winter, the risk of localised outbreaks is reduced but cannot be ruled out.

15. Infected cattle can be viraemic and infectious from as early as 6 days following infection and remain viraemic for 1-2 weeks from the onset of clinical signs. The disease therefore has the potential to quickly spread undetected during the vector season if animals are grazing and not examined at regular intervals. Sub-clinically infected animals can also be viraemic and have the potential to spread the infection, though clinically infected animals with nodules are likely to be more important in the transmission of the disease.

16. Other potential routes of infection include:

- direct and indirect contact with infected saliva, tissues (e.g. scabs), food and water;
- ingestion of unpasteurised milk from infected animals;
- contact with untreated animal hides (a APHA risk assessment concluded that the risk of importing an infected animal from the EU or contaminated hides from the EU or a third country was low);
- vertical transmission through infected semen;
- transmission from mother to foetus; and
- infected needles and blood.

17. The virus is very stable in the environment. It can survive for long periods at ambient temperatures in dried scabs and infected tissues and can persist for several months in the right environmental conditions (for example in scabs in shaded animal pens). It is susceptible to sunlight and detergents containing lipid solvents, so good biosecurity, cleansing and disinfection (C&D) should be observed to reduce the risk of transmission from these sources.

18. UK (native) livestock are likely to be highly susceptible to LSD infection and show signs of disease because they have not been exposed to the disease before and will have no acquired immunity or protection from previous infection. There is limited evidence of infection in non-livestock species and it is unlikely that wildlife would be affected.

Prevention

19. Given the means by which this disease spreads and the risk of contamination of the environment, it is imperative that good biosecurity measures are followed. This includes responsible sourcing of susceptible animals, checking their health status, vigilance by animal keepers and discussing any concerns with their vet promptly. Vigilance should also be maintained at slaughterhouses.

20. Early detection through vigilance, good biosecurity and prompt reporting are important aspects in controlling the spread of LSD. If an animal keeper, farmer or vet has any concerns about potential LSD in an animal or carcase they must report this as soon as possible to the Animal and Plant Health Agency (APHA).

21. Defra monitors the international disease situation closely. Preliminary outbreak assessments are published on the Defra website on notification of a disease outbreak from the EU or OiE. For outbreaks of LSD in an EU member state (MS), a country bordering the EU or a trading partner, more in-depth qualitative risk assessments may be carried out by Defra. These are designed to give a balanced account of the threat of the disease incident to GB at present and in the future. Both assessments are used to inform government's advice on the risk level of LSD to GB and inform the consideration of post-import controls.

22. Should the risk of incursion of LSD into the UK increase, government will inform stakeholder organisations to allow them to consider appropriate preventative measures. Assessments are available at: https://www.gov.uk/government/collections/animal-diseases-international-monitoring.

Suspicion of infection

Notification to Animal and Plant Health Agency (APHA)

23. If disease is suspected then this must be reported using one of the following methods:

- In England, by reporting suspicion of the disease to Defra Rural Services Helpline.

- In Scotland, by reporting suspicion of the disease to your local APHA Field Services office.
- In Wales, by reporting suspicion of the disease to the APHA Field Services Wales Helpline.

Veterinary inquiry

24. In response to the notification of suspicion of LSD, a veterinary inquiry will be conducted at the suspect premises by a government veterinary inspector (VI). The premises will be under movement restrictions during this time. If the VI cannot rule disease out following a clinical assessment of the affected animal(s), samples will be taken from susceptible animals and submitted for testing at the national reference laboratory at the Pirbright Institute.

25. An inventory of all animals on the premises will be compiled by the VI. This will include:
    - information on all animals by species clinically affected, dead and clinically normal
    - veterinary history of the herd (e.g. medicine use)
    - movements of LSD-susceptible animals onto and off the suspect premises for at least the previous 28 days and details of any contact premises
    - possible vector breeding sites.

Testing and diagnosis

26. The VI will send samples of blood and tissues from susceptible animals for polymerase chemical reaction (PCR) testing to the OiE capripox reference laboratory at the Pirbright Institute.

27. The PCR test is highly sensitive and specific and will be the primary test used to support diagnosis of the disease. PCR results are normally available within 24 hours.

Area restrictions around the suspect premises

28. If the VI is unable to clinically rule out suspicion of the disease, restrictions will continue to be applied to the suspect premises to prohibit the movement (except under licence) of:
    - people, equipment and vehicles to or from the suspect premises,
    - all animals including animals of other species not susceptible to the disease,
    - meat, unpasteurised milk, animal carcases, animal feed, manure and equipment,

- waste – including milk from dairy cattle, bedding, litter,
- hides and skins,
- anything else with potential to transmit the disease.

29. Further restrictions and requirements may be applied to prevent the spread of disease. These may include disinfection arrangements at entrances and exits, and keeping susceptible animals indoors or isolated. These measures may also be applied to associated holdings and contact premises. This is more likely if animals are traced from a location already confirmed with disease.

30. If the LSD virus is already circulating in GB, a Temporary Control Zone (TCZ) may also be declared around the premises. The size of this will be based on veterinary advice and will consider:

- geographical boundaries;
- seasonal vector activity and weather conditions;
- density of susceptible species in the area surrounding the IP;
- tracing of recent cattle movements to and from the infected area;
- the specific circumstances of the outbreak

Epidemiological inquiry

31. Information will also be gathered so that an epidemiological inquiry can begin. This inquiry will progress if disease is confirmed and will look to determine:

- the period during which LSD may have been present on the premises;
- the source and spread of the disease;
- any other premises that may have been contaminated from the same origin;
- the extent to which other susceptible animals may have been infected or contaminated;
- any premises to or from which the virus may have spread.

Suspicion of disease at a slaughterhouse

32. If disease is suspected at a slaughterhouse and the VI cannot rule disease out, a notice will be served restricting the movement of all animals, people and anything with the potential to transmit LSD disease from the premises. The suspect animals will be slaughtered and stored separately, and APHA will undertake a veterinary inquiry at the originating premises.

Outcome of investigation of suspect premises and animals

33. There are two possible outcomes:

- LSD is not confirmed – restrictions would be lifted
- LSD is detected in the animals tested.

34. At this time, the CVOs of the four UK administrations will convene to consider the outcome of the veterinary inquiry and emerging lab results. If it looks likely that disease will be found, an 'amber' teleconference will be arranged, chaired by the Chief Veterinary Officer (CVO) and attended by government representatives, to apprise all concerned of the developing situation and agree the next steps. Government will also consider when to inform the relevant industry and stakeholder organisations.

35. If LSD is detected in the PCR results, the laboratory will inform the relevant CVO(s) for the country(s) affected and the CVO will, if satisfied with the results, confirm the presence of LSD in the UK. The CVO UK will notify the European Commission and OIE.

Disease confirmed in GB

Disease control objectives

36. If a notifiable exotic disease is confirmed in Great Britain (GB) government will act swiftly and decisively, in partnership with operational partners and stakeholders to:

- protect the health and safety of the public and those directly involved in controlling the outbreak;
- eradicate the disease and regain disease-free status;
- minimise the burden on the taxpayer and public as well as the economic impact of the outbreak on industry.

37. We will endeavour to:

- control disease and safeguard animal health and welfare, and humanely destroy as few animals as necessary;
- minimise adverse impacts on animal health and welfare, the rural and wider economy, the public, rural communities and the environment.

Trade restrictions

38. In the event of an outbreak in GB, trade in live animals or products of susceptible species, (such as semen, embryos, ova, products for agricultural or industrial use) would be suspended from premises within the infected area(s), according to guidance from the OiE Terrestrial Code[3]. The European Commission may request additional assurances, as may third country trading partners. Wherever possible, government would look to apply regionalisation in accordance with OiE principles in order to allow trade to continue from unaffected areas.

Actions at an infected premises

39. On the premises where disease is confirmed, restrictions already imposed on the premises will remain in force. Susceptible animals will be humanely culled. Their carcases will be disposed of and preliminary C&D will be carried out on the farm under APHA supervision. The epidemiological investigation will continue to seek to establish where the disease came from and where it may have spread.

Human and food safety

40. LSD is not transmissible to humans and there are no implications for food or human health.

Culling

41. If LSD is confirmed, all susceptible animals on the infected premises will be humanely culled in accordance with EU and domestic law. There are certain animals on the UK breeds at risk list which may be spared from culling. This will be subject to a veterinary risk assessment and the European Commission will be informed if this approach is to be taken. If there are multiple infected premises and culling is considered to be less effective, government may approach the EU to request a deviation from the EU requirement to cull whole herds.

Compensation and valuation

42. Compensation provisions for animals culled for disease control purposes are set out in the Animal Health Act 1981. This provides that the compensation will be the value of the animal immediately before it was slaughtered.

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[3] OiE Terrestrial Animal Health Code: http://www.OiE.int/index.php?id=169&L=0&htmfile=chapitre_lsd.htm

43. Compensation will be paid for anything that has to be seized and destroyed by APHA because it poses a risk of transmitting disease and cannot be cleansed and disinfected. This will be at the value of the item at the time of seizure (that is in its contaminated state, which often means the item has no value).

44. Compensation is not paid for any meat, milk or by-product that is required to be disposed of following trace investigations of potential sources of disease spread.

Disposal of carcases

45. On premises where susceptible animals have been culled for disease control purposes, the carcase of any animal that dies or is culled on that premises will be removed under the authority of the relevant Minister, and disposed of in such a way as to prevent the onward spread of LSD.

46. On premises where no animals have been culled for disease control purposes, disposal of carcases shall remain the responsibility of the owner of the animals. Carcases must be disposed of in accordance with the Animal By-Products (Enforcement) (England) Regulations 2013, the Animal By-Products (Enforcement) (Scotland) Regulations 2013 or the Animal By-Products (Enforcement) (Wales) Regulations 2011.

Cleansing and disinfection (C&D)

Primary C&D

47. After the carcases have been disposed of, preliminary C&D of the premises will be carried out under the supervision of APHA and at the cost of government.

Secondary C&D

48. Secondary C&D will be required prior to restocking with replacement animals, and this will be carried out to a satisfactory standard by the owner at their own expense, and subject to government sign-off. This will include:

- disinfection of animal housing and equipment using government's list of disinfectants approved for use in Scotland, England and Wales;
- the destruction of contaminated feed, bedding litter, manure and slurry by incineration or treatment according to APHA guidance;
- insecticide application where appropriate.

Restocking of depopulated premises

49. As the LSD virus is vector borne and can persist for long periods in the environment, unprotected replacement animals are at risk of being infected if they are introduced to a previously infected premises too soon. It is therefore important to ensure that replacement animals are vaccinated prior to being brought on to a previously infected premises.

50. Restocking with vaccinated susceptible animals will not be permitted until at least 21 days after completion of secondary C&D of the infected premises. The replacement animals must have been vaccinated at least 28 days prior to moving onto the previously infected premises, to allow immunity to have developed.

51. If the keeper is unable to source replacement vaccinated animals, permission to restock with unvaccinated susceptible animals may only be granted following an individual risk assessment (completed by government) and only after a sufficient amount of time has passed to reduce the risk of LSD virus still being present in the environment and vector populations. Additional restrictions and monitoring may apply to the replacement animals, their products, and any areas of the premises that cannot be adequately cleansed and disinfected, based on the findings of the risk assessment.

Confirmation of disease at a slaughterhouse

52. All carcases originating from the source farm will be destroyed under official supervision. No compensation is payable. No further animals will be allowed into the slaughterhouse until all relevant areas that may have been contaminated have been thoroughly cleansed and disinfected in agreement with APHA, and to their satisfaction. The premises of origin will be traced and a veterinary investigation carried out to determine what further action is required.

53. Restrictions may apply to the movement and trade of certain animal by-products. These are detailed within the table at annex B.

Tracings and contact premises

54. As a result of the epidemiological inquiry, other premises may be identified where the infection may have come from or spread to (for example, via movement of live animals or movement of infected materials). These are referred to as contact premises.

55. When a contact premises is identified through tracing to and from the IP, an assessment will be made about the level of risk that any susceptible animals have been exposed to. If the risk of exposure is high then restrictions will be served on the contact premises and the animals' health status will be regularly monitored over a period of 28 days from the last known contact with the IP.

56. In some circumstances the risk to susceptible animals is found to be exceptionally high – particularly when live animals have been moved from an infected premises during the infectious period. In these situations the premises will most likely be considered a dangerous contact and all susceptible animals at the premises may be culled.

Disease control zones

General principles

57. On confirmation of disease a declaratory order issued by the relevant administration(s) would outline area-based movement restrictions on premises around the infected premises (IP). Within these zones there will be restrictions on the movement of susceptible animals and other things likely to transmit LSD. Movements of cattle to and from these zones are also liable to be subject to restrictions. The rationale behind these measures is to minimise the risk of onward spread of disease to other susceptible animals. Susceptible animals in these zones, particularly in close proximity to infected premises, will be subject to inspection or examination.

Cross-border zones in GB

58. If the IP where disease has been confirmed is located near the border with another GB country, or where the zone(s) declared extend into that country, then both administrations will make the declaration relating to the zones.

Size of zones

59. Although EU legislation sets a legal minimum for the size of zones (3km and 10km radius for a protection zone and surveillance zone respectively) outbreaks on the continent and studies of the spread rate of LSD[4] have shown this to be ineffective in controlling the spread of virus. In GB the following movement restriction zones would be required as a minimum:

- An inner protection zone (PZ) of at least 20km radius
- A surveillance zone (SZ) of at least a further 20km radius

These zones will collectively be referred to as the infected area.

[4] Spread rate of lumpy skin disease in the Balkans, 2015–2016: https://www.ncbi.nlm.nih.gov/pubmed/28239954

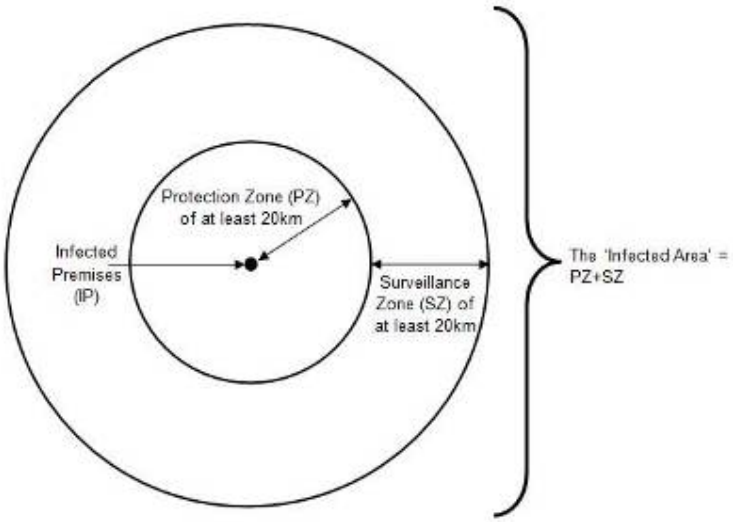

Fig1: Illustration of zones around an infected premises.

60. When determining the size of zones to be applied, government will take account of:

- geographical boundaries;
- seasonal vector activity and weather conditions;
- density of susceptible species in the area surrounding the IP;
- tracing of recent cattle movements to and from the infected area;
- the specific circumstances of the outbreak

61. There may be occasions when it is proportionate to extend the boundaries of a zone to minimise the impact of the restrictions on industry (e.g. to provide access to a slaughterhouse).

62. Alternatively, if permitted following a risk assessment, a slaughterhouse may be designated to receive animals transported under licence out of a PZ or SZ. In such cases the operator of the slaughterhouse will likely be required to follow certain licence conditions, such as the slaughter of the animal(s) that are subjected to movement controls within 24 hours of arrival, and following a satisfactory clinical inspection of the animals on the day of transport. It might

also be necessary to restrict the times animals can be transported to minimise exposure of susceptible livestock to biting insects.

63. The European Commission may also amend the boundaries after consideration of the results of investigations and surveillance submitted by the UK.

64. The table at Annex B details the disease control measures that will apply in each of the declared zones.

Movement restrictions

65. Animals and animal products present variable levels of risk. The movement of cattle, raw hides and skin from infected susceptible animals pose a higher risk in terms exposure and consequence than other products such as milk and dairy products, treated hides and skin or fresh meat and fresh meat products. Please see the table of restrictions (Annex B) for more detailed information on restrictions within and between zones.

66. Susceptible animals must remain within the zones for at least the maximum incubation period of the virus (for the LSD virus this is 28 days) following the most recent recorded case of disease. In the zones the movement and transport of susceptible animals on public roads (and on private roads in the PZ) or by rail is prohibited except under certain conditions. Certain animal movements may be permitted under licence, subject to a risk assessment.

67. A consequence of the requirement for susceptible animals to be kept in the zones for the incubation periods is that a designated slaughterhouse for emergency slaughter must be within the PZ or SZ (see paragraph 62 for exceptions.) Such movements can only take place if none of the animals are suspected of being infected. Hides from slaughterhouses are covered by the animal by-products regulations. Animal waste such as feed, bedding litter, manure and slurry (if considered likely to be contaminated) are to be incinerated or treated according to guidance from APHA.

Protection Zone & Surveillance Zone

68. The details of the applicable movement restrictions in these zones are detailed in the table at Annexes B & C.

Vaccination

69. Vaccination can play a major role in controlling LSD by:

- preventing or reducing incidents of clinical disease when animals are exposed to virus;
- reducing the number of infected vectors;

- preventing or reducing the amount of virus produced by infected animals. This reduces the likelihood of spread to other animals and in turn reduces the number of animals killed during an outbreak.

However, on occasion, LSD vaccination can also cause side effects such as:

- lumps that are smaller and fewer than seen in cattle infected with LSD (usually less than 10)
- fever;
- a reduction in milk production.

It can also prolong the length of time taken to regain disease freedom.

70. The routine preventative vaccination for LSD is usually prohibited within EU member states, but the commission may authorise an emergency vaccination programme where the virus is already present and provided that it is supplementary to the control measures already detailed above. Preventative vaccination programmes can also be considered if there is a very high risk of incursion through other routes, for example from a neighbouring infected territory.

71. The vaccine against LSD is a live vaccine. The use of it would place restrictions on the international trade of live animals and animal products from the vaccination zone for a minimum period of 8 months if vaccination is used preventatively without any incursion of the disease, and 14 months if it is used as a disease control measure following an outbreak. It would therefore potentially lengthen the period required for the UK to regain disease freedom. However, without vaccination LSD could rapidly spread throughout GB and become endemic in cattle.

72. In the event of an LSD outbreak in GB, the CVOs of the UK administrations will consider the merits of vaccination. Industry groups would be consulted prior to any recommendations being put to ministers to vaccinate. Where vaccination is considered a necessary and proportionate disease control measure, the UK CVO will inform the European Commission of our intention to commence an emergency vaccination programme.

73. In all instances where vaccination is considered, we would aim to implement the smallest possible vaccination zone required in order to stop the onward spread of disease.

Vaccination zones

74. Where an emergency vaccination programme is approved, government will declare one or more vaccination zones (VZ) of a suitable size to control disease spread, and the vaccination of all susceptible animals within the VZ(s) will be compulsory. The expected duration of the vaccination programme will be included in the declaration.

75. Vaccinations will be administered on the premises under the control of government. The National Experts Group (NEG) will meet to consider the most effective delivery strategy for vaccinating cattle in the VZ based on the specific circumstances of the outbreak. That strategy will be discussed with industry and put to the UK Animal Disease Policy Group (ADPG) for agreement. It is most likely that vaccine will be administered by a VI, delivery partner, authorised private vet or lay-vaccinator.

76. A VZ will always incorporate the infected area, which will be equivalent to the existing PZ and SZ in place around an IP as a minimum. This will be called the 'infected area vaccination zone (IVZ)'.

77. Government may also decide to vaccinate cattle in a 'free area vaccination zone (FVZ)'. A free area is an area where animals are being preventatively vaccinated to stop disease from spreading outside of the infected area.

78. There will be a requirement to:

- vaccinate all bovines independent of age, sex, gestational or productive status (but in accordance with the vaccine manufacturer's instructions.)
- vaccinate the over four-month old offspring of vaccinated cows in accordance with the vaccine manufacturer's instructions.
- revaccinate all bovines in accordance with vaccine manufacturer's instructions.
- return all unused vaccine to the point of vaccine distribution with a written record on the number of animals vaccinated and the number of doses used.

79. Consideration will be given to the vaccination of other LSD susceptible species, such as water buffalo and bison.

80. The passport numbers of vaccinated animals will be centrally recorded by APHA or its contractor. The unvaccinated offspring of vaccinated cattle will also be recorded, along with their dam's ID. Key information on animals vaccinated will be recorded by government to meet minimum EU recording standards.

81. Vaccinated animals are protected from clinical signs but not necessarily from infection and not all vaccinated animals respond with a protective immunity. For this reason, vaccinated animals will not be able to move out of a VZ until certain conditions have been met. Restrictions will differ depending on whether the animal was vaccinated in the IVZ or FVZ. The restrictions will be set out in full if an emergency vaccination programme is to take place.

Vaccination surveillance zone (VSZ)

82. Around any zone where vaccination is carried out, and additional VSZ of at least 20km will be declared. Intensified surveillance will be carried out in this zone and vaccination of animals will be prohibited.

Recovery

Duration of zones

83. If a TCZ was declared it will remain in place until disease is either ruled out or confirmed. Where disease is ruled out, the zone will end and all restrictions will be lifted. Where disease is confirmed, the zone will end and will be replaced by the mandatory PZ and SZ.

84. The PZ must remain in place for a minimum of 28 days following primary C&D of the last infected premises. If no animals within the PZ show clinical signs or test positive for the virus within this 28 day period the PZ can become part of the SZ and the PZ restrictions can end.

85. The SZ will remain in place for a further of 28 days following the collapse of the PZ. Provided that no animals within the SZ show clinical signs or test positive for the virus within this period, the SZ and its associated restrictions can end.

86. Where an Emergency Vaccination Programme is underway, the VZ restrictions will still apply following collapse of the PZ and SZ. The expected length and duration of the vaccination programme and zone will be specified at the outset of any emergency vaccination programme.

Resuming international trade

87. The timing for resuming exports will vary depending on whether or not an emergency vaccination programme was implemented and will be subject to various criteria. The table at Annex B shows some examples of the trade restrictions that apply to each of the different zones.

Regaining disease free status

88. The OIE Terrestrial Animal Health Code sets out requirements which determine whether a country is regarded as disease free.

OIE Terrestrial Animal Health Code – LSD Chapter.

89. Following an outbreak of LSD, GB can be considered disease free when:

- A clinical, virological and serological surveillance programme has found no evidence of LSD virus in the 14 months following the case of LSD or the last vaccination, whichever is later; or
- A clinical surveillance programme has found no evidence of LSD virus in 3 the 26 months following the last case of LSD or the last vaccination, whichever is later.

90. The GB Government are strongly supportive of the OiE measures and surveillance activities following an outbreak of LSD would focus on gathering the necessary evidence to seek to declare disease freedom and return to trade as quickly as possible.

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Annex A: Relevant legislation

EU legislation

Council Directive 92/119

UK Primary Legislation

The Animal Health Act 1981

The Animal Health Act 2002 (England and Wales)

The Animal Health and Welfare (Scotland) Act 2006

UK Secondary Legislation

Great Britain

The Specified Diseases (Notification and Slaughter) Order 1992

The Specified Diseases (Notification) Order 1996

England

Movement of Animals (Restrictions) England Order 2002

Movement of Animals (Restrictions) (England) (Amendment) Order 2007

The Animal By-Products (Enforcement) (England) Regulations 2013

The Animal By-Products (Enforcement) (England) (Amendment) Regulations 2015

Scotland

The Movement of Animals (Restrictions) (Scotland) Order 2003

The Animal By-Products (Enforcement) (Scotland) Regulations 2013

The Animal By-Products (Miscellaneous Amendments) (Scotland) Regulations 2015

Wales

The Movement of Animals (Restrictions) (Wales) Order 2003

The Movement of Animals (Restrictions (Wales) (Amendment) Order 2009

The Animal By-Products (Enforcement) (Wales) Regulations 2011

The Animal By-Products (Enforcement) (Wales) Regulations 2014

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Annex B: Control measures by zone

Control measure	Infected Premises (IP)	Protection Zone (PZ)	Surveillance Zone (SZ)	Vaccination Zones (IVZ and FVZ)
Detection: horizon scanning; checks on health certificates; post import testing from current LSD areas,	N/A	Yes	Yes	Yes
Increase and maintain awareness in the farming and veterinary community	Yes	Yes	Yes	Yes
Whole herd cull	Yes*	N/A: any infected animal creates a new IP		
Movement restrictions on animals, carcases, hides and skins, ovum, embryos, semen	Yes	Yes	Yes	Yes
Vaccination with live vaccines	N/A	No, unless an emergency vaccination programme is authorised		Yes

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Monitoring & Surveillance of live animals	N/A	Yes	Yes	Yes
Vector control in premises and on animals if possible (dependent on type of vector, if known)	Yes Thorough C&D with approved disinfectants	No	No	No
Export trade restrictions	Yes	Yes	Yes	Yes

***There are certain animals on the UK breeds at risk list which may be spared from culling.**

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Annex C: Table of restrictions

Movements of live animals (cattle, water buffalo, bison) and germplasm (ovum, embryos, semen) in a Lumpy Skin Disease outbreak.

Zone	Restrictions
Temporary Control Zone (TCZ) The size of any TCZ will be based on veterinary advice based on the specific circumstances of the case. A TCZ is unlikely to be declared if disease has not already been confirmed in GB.	**Movement Restrictions:** Restrictions on the movements of susceptible animals into and out of the TCZ, except: • Through the zone without stopping; or • To complete a journey started before the creation of the zone; Restrictions on movement of susceptible animals between premises within the TCZ.
Protection Zone (PZ) The PZ will cover at least a 20km radius around the infected premises – the actual size of the zone will be determined following consideration of all relevant factors at the time of the outbreak.	**Movement Restrictions:** Restrictions on movements of all susceptible animals along public or private roads between premises within the PZ, except under licence for: • Movement to a slaughterhouse for 'emergency slaughter' Restrictions on movements along public or private roads into and out of the PZ, except under licence for: • Transport through the zone without stopping or unloading; • Transport from outside the zone for immediate slaughter in a slaughterhouse within the PZ; • Transport from the PZ to a slaughterhouse within the SZ for emergency slaughter; • Transport to an officially designated slaughterhouse outside of the SZ for

	emergency slaughter (subject to a satisfactory clinical inspection on the day of transport and provided that a minimum of 28 days has passed since the last recorded case of LSD); Controls (under licence) for the collection of milk, transport and processing of milk and milk products. **Trade restrictions:** Restrictions will apply to the dispatch of consignments of: • Live cattle, water buffalo and bison • Semen, Ova and Embryos • Unprocessed animal by-products • Untreated animal hides • Colostrum, Milk and Dairy Products
Surveillance Zone (SZ) The SZ will cover a minimum of 20km radius around the PZ – but likely to be larger in order to control spread of disease.	**Movement Restrictions:** Restrictions on movements of all susceptible animals along public roads within the SZ, except for: • Movement to pasture or animal housing on another part of the same premises within the SZ; Restrictions on movements along public roads into and out of the SZ, except under licence for: • Transport through the zone without stopping or unloading; • Transport from outside the zone for immediate slaughter in a slaughterhouse within the SZ; • Transport to an officially designated slaughterhouse outside of the SZ for emergency slaughter (subject to a satisfactory clinical inspection on the day of transport and provided that a minimum of 28 days has passed since the

	last recorded case of LSD); Controls (under licence) for the collection of milk, transport and processing of milk and milk products. **Trade restrictions:** Restrictions will apply to the dispatch of consignments of: • Live cattle, water buffalo and bison • Semen, Ova and Embryos • Unprocessed animal by-products • Untreated animal hides • Colostrum, Milk and Dairy Products
Infected Area (IA) The IA is the term used to describe the combined area of the PZ and SZ. If an emergency vaccination programme is used as a disease control measure, the IA will become the 'Infected Area Vaccination Zone'	Please see the boxes for the PZ and SZ for the details of applicable restrictions.
Infected Area Vaccination Zone (IVZ) An IVZ will be declared following the authorisation to commence with an Emergency Vaccine Programme. The IVZ will be of equal size to the IA. If vaccinations are not taking place	The movement and trade restrictions in this zone will be specified at the outset of an emergency vaccination programme.

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outside of the IVZ, an additional VSZ of at least 20km will be placed around the IVZ.	
Free Area Vaccination Zone (FVZ) An FVZ may be declared following the authorisation to commence with an Emergency Vaccine Programme. The FVZ will be of a suitable size to effectively control the spread of disease and will normally be located around an IVZ. An additional VSZ of at least 20km will be placed around the FVZ.	The movement and trade restrictions in this zone will be specified at the outset of an emergency vaccination programme.
Vaccination Surveillance Zone (VSZ)	No vaccination permitted. Clinical surveillance and testing of susceptible species required to be carried out by APHA.

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AUSTRALIAN VETERINARY EMERGENCY PLAN

AUSVETPLAN

Response strategy

Lumpy skin disease

Version 5.0

AUSVETPLAN is a series of technical response plans that describe the proposed Australian approach to an emergency animal disease incident. The documents provide guidance based on sound analysis, linking policy, strategies, implementation, coordination and emergency-management plans.

National Biosecurity Committee

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Text under development

In this manual, text placed in square brackets [xxx] indicates that that aspect of the manual remains unresolved or is under development; such text is not part of the official manual. The issues will be further worked on by experts and relevant text included at a future date.

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EMERGENCY ANIMAL DISEASE WATCH HOTLINE: 1800 675 888

The Emergency Animal Disease Watch Hotline is a toll-free telephone number that connects callers to the relevant state or territory officer to report concerns about any potential emergency disease situation. Anyone suspecting an emergency disease outbreak should use this number to get immediate advice and assistance.

Edition 1
1991

Edition 2
Version 2.0, 2006 (major update)

Edition 3
Version 3.0, 2009 (major update to Edition 3)

Edition 5
Version 5.0, 2022 (major update and new format)

Contents

1 Introduction

1.1 This manual

1.1.1 Purpose

As part of AUSVETPLAN (the Australian Veterinary Emergency Plan), this response strategy contains the nationally agreed approach to the response to an incident – or suspected incident – of lumpy skin disease (LSD) in Australia. It has been developed to guide decision making to ensure that a fast, efficient and effective response can be implemented consistently across Australia with minimal delay.

1.1.2 Scope

This response strategy covers LSD caused by lumpy skin disease virus.

This response strategy provides information about:

- the disease (Section 2)
- the implications for Australia, including potential pathways of introduction; social, environmental, human health and economic effects; and the critical factors for a response to the disease (Section 3)
- the agreed policy and guidelines for agencies and organisations involved in a response to an outbreak (Section 4)
- declared areas and premises classifications (Section 5)
- biosecurity controls, including quarantine and movement controls (Section 6)
- response surveillance and establishing proof of freedom (Section 7).

The key features of LSD are described in the **Lumpy skin disease fact sheet** (Appendix 1).

1.1.3 Development

The strategies in this document for the diagnosis and management of an outbreak of LSD are based on risk assessment. They are informed by the recommendations in the World Organisation for Animal Health (WOAH) *Terrestrial animal health code* (Chapters 7.6 and 11.9) and the WOAH *Manual of diagnostic tests and vaccines for terrestrial animals* (Chapter 3.4.12). The strategies and policy guidelines are for emergency situations and are not applicable to policies for imported animals or animal products.

This manual has been produced in accordance with the procedures described in the **AUSVETPLAN *Overview***, and in consultation with Australian national, state and territory governments; the relevant livestock industries; nongovernment agencies; and public health authorities, where relevant.

In this manual, text placed in square brackets [xxx] indicates that that aspect of the manual remains unresolved or is under development; such text is not part of the official manual. The issues will be worked on by experts and relevant text included at a future date.

1.2 Other documentation

This response strategy should be read and implemented in conjunction with:

- other AUSVETPLAN documents, including the operational, enterprise and management manuals; and any relevant guidance and resource documents. The complete series of manuals is available on the Animal Health Australia website[1]
- relevant nationally agreed standard operating procedures (NASOPs).[2] These procedures complement AUSVETPLAN and describe in detail specific actions undertaken during a response to an incident. NASOPs have been developed for use by jurisdictions during responses to emergency animal disease (EAD) incidents and emergencies
- relevant jurisdictional or industry policies, response plans, standard operating procedures and work instructions
- relevant Commonwealth and jurisdictional legislation and legal agreements (such as the Emergency Animal Disease Response Agreement – EADRA[3]), where applicable.

1.3 Training resources

EAD preparedness and response arrangements in Australia

The EAD Foundation online course[4] provides livestock producers, veterinarians, veterinary students, government personnel and emergency workers with foundation knowledge for further training in EAD preparedness and response in Australia.

[1] www.animalhealthaustralia.com.au/our-publications/ausvetplan-manuals-and-documents
[2] https://animalhealthaustralia.com.au/nationally-agreed-standard-operating-procedures
[3] https://animalhealthaustralia.com.au/eadra
[4] https://animalhealthaustralia.com.au/online-training-courses

2 Nature of the disease

Lumpy skin disease (LSD) is an acute to chronic, highly infectious, generalised skin disease of cattle and buffalo characterised by widespread skin nodules, production losses and mortality. The disease is caused by lumpy skin disease virus, which is similar to the viruses causing sheep pox and goat pox. Lumpy skin disease is a mechanically transmitted vector-borne disease, which can also be transmitted directly and through fomites.

2.1 Aetiology

Sheep pox, goat pox and LSD viruses belong to the genus *Capripoxvirus* of the family *Poxviridae*. These viruses are morphologically indistinguishable from each other; they are also difficult to distinguish serologically, and cross-protection does occur (Kitching 2003). However, they are phylogenetically distinct and are adapted to different host species (Tulman et al 2001, 2002). They can be differentiated using species-specific molecular diagnostic techniques (Le Goff et al 2009; Lamien et al 2011a, b).

2.2 Susceptible species

LSD mainly affects cattle. *Bos taurus* cattle are generally more susceptible than *Bos indicus* (zebu) cattle (Davies 1991a, Gari et al 2011). Jersey, Guernsey, Friesian and Ayrshire breeds are particularly susceptible. Cases have also been seen in Asian water buffalo *(Bubalis bubalis)* (Ali et al 1990, El-Nahas et al 2011, Elhaig et al 2017) and banteng (*Bos javanicus*). It has been reported that the morbidity rate in buffalo (1.6%) is significantly lower than in cattle (30.8%) (El-Nahas et al 2011).

Some strains of LSD virus may replicate in sheep and goats, although there is no epidemiological evidence of small ruminants acting as a reservoir for the virus (FAO 2017, Tuppurainen et al 2017).

LSD was reported in Arabian oryx in Saudi Arabia (Greth et al 1992); however, differentiation from sheep pox was not confirmed. Experimentally, impala and giraffe are also susceptible (Young et al 1970, Hedger & Hamblin 1983, Greth et al 1992). No wildlife reservoir species have been identified in Africa.

Antibodies to capripoxviruses have been detected in a range of African wildlife species, including Cape buffalo (*Syncerus caffer*), wildebeest, springbok, eland, impala, kudu and waterbuck (Davies 1982, 1991a; Hedger & Hamblin 1983; Barnard 1997). LSD virus nucleic acid has been detected in skin samples from springbok (Le Goff et al 2009, Lamien et al 2011a).

Australian fauna are unlikely to be susceptible to LSD.

2.2.1 Zoonotic potential

LSD does not affect humans (OIE 2017).

2.3 World distribution

For the latest information on the distribution of LSD, refer to the World Organisation for Animal Health (WOAH) World Animal Health Information System.[5]

2.3.1 Distribution outside Australia

Before 2012, the distribution of LSD was limited to Africa and Israel. However, since then, LSD has spread to many parts of the Middle East, Turkey, Cyprus, eastern Europe, the Balkans and the Russian Federation (EFSA AHAW Panel 2015).

Since 2019, LSD has spread throughout the Asian continent, including India and China, and southwards through Southeast Asia. In 2020, outbreaks were reported in a territory of Taiwan and in Nepal (possibly from the movement of flies or mosquitoes from neighbouring countries, or animal movements). In 2021, LSD spread further into Cambodia, Malaysia and Thailand. In 2022, cases were reported in Indonesia and Singapore.

2.3.2 Occurrence in Australia

LSD has never been recorded in Australia.

2.4 Epidemiology

2.4.1 Incubation period

The incubation period for LSD is 6–26 days (Sohier et al 2019, EFSA 2020).

WOAH incubation period

For the purposes of the WOAH *Terrestrial animal health code*, the incubation period[6] for LSD is 28 days.

[5] https://wahis.woah.org/#/home

[6] In the OIE Terrestrial Code, 'incubation period' means the longest period that elapses between the introduction of the pathogenic agent into the animal and the occurrence of the first clinical signs of the disease. See www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/?id=169&L=1&htmfile=glossaire.htm.

2.4.2 Persistence of agent and modes of transmission

General properties

General properties of LSD virus include:

- stable between pH 6.6 and 8.6 (Barnard et al 1994, Coetzer & Tuppurainen 2004)
- inactivated in 10 minutes at 60 °C, but dried virus (orthopoxviruses in general) can withstand 100 °C for 10 minutes (Andrewes et al 1978)
- persists in dark environmental conditions for many months (OIE 2017)
- persists for long periods in chilled (4 °C) and frozen (–80 °C) material (Weiss 1968)
- susceptible to heat, with inactivation at 55 °C in 2 hours and 65 °C in 30 minutes; these values are also commonly cited for sheep pox and goat pox viruses (OIE 2017)
- susceptible to sunlight and detergents containing lipid solvents
- inactivated by a wide range of disinfectants, including some detergents, ether, chloroform, formalin, phenol, sodium hypochlorite, iodine compounds and quaternary ammonium compounds (Weiss 1968, OIE 2017).

Organic material surrounding the infectious virus in the environment will affect the efficacy of disinfectants.

Note that these are general properties, and research to validate specific values is limited. Data on LSD virus stability outside the ranges given above are lacking. For example, the range of pH values that the virus can tolerate may be wider than thought, and extremes of acidity or alkalinity may be required to reliably lead to significant inactivation (Polson & Turner 1954, Herd Health 2017). A few studies demonstrate the pH resistance to inactivation of both sheep pox virus and goat pox virus, with virus survival between pH 3.0 and 11.0 (OIE 2017).

The common temperature range cited for inactivation of LSD virus is extrapolated from studies on sheep pox virus and vaccinia virus. Many studies have produced inactivation in the 50–60 °C range; however, some studies had differing findings on inactivation levels and resistance of individual strains to these treatments. Although pasteurisation is likely to inactivate some virus, the level of inactivation has not been quantified. Consideration should also be given to the protective qualities of milk fat and protein (OIE 2017). The WOAH recommendations for importation of milk and milk products are that the products have either been derived from animals in a country or zone free from LSD or were subjected to pasteurisation or any combination of control measures with equivalent performance, as described in the Codex Alimentarius *Code of hygienic practice for milk and milk products*.[7]

[7] www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/?id=169&L=1&htmfile=chapitre_lsd.htm

Environment (including windborne spread)

Capripoxviruses can remain viable for long periods outside the animal host. They may persist for many months in a suitable environment, such as that provided by shaded animal pens (OIE 2017, DoA & CSIRO 2019).

Windborne spread has not been documented, but dispersal of vectors by wind may facilitate disease spread (see 'Arthropod vectors').

Arthropod vectors

Mechanical transmission by biting insects is considered to be the main route of local transmission of LSD virus. Longer-distance spread (eg by wind dispersal of vectors) has been implicated in the introduction of LSD into new countries.

Uptake of virus by biting vectors is most efficient from clinically affected animals; asymptomatic animals in a herd are likely to have much lower virus titres and therefore play less of a role in propagation of the virus by vectors (Sanz-Bernardo et al 2021). LSD virus has been shown to persist for 2.4 days in the vector, and the vector has a 0.19 probability of transmitting LSD to cattle (Sanz-Bernardo et al 2021).

The likely insect species involved are expected to vary depending on local conditions and insect populations. Mechanical transmission of LSD virus by mosquitoes (*Aedes aegyptii*) and hard ticks (*Rhipicephalus appendiculatus*) has been demonstrated experimentally (Chihota et al 2001, Tuppurainen et al 2013a). Stable flies (*Stomoxys calcitrans*), tabanid flies, other flies, midges (*Culicoides* spp.) and other hard ticks (eg *Amblyomma hebraeum*) have also been demonstrated as mechanical vectors (Weiss 1968, Kitching & Mellor 1986, Muller et al 2011, Tuppurainen et al 2011, Lubinga et al 2015, EFSA AHAW Panel 2015).

LSD virus is not thought to remain infectious in mechanical vectors for long, although survival for at least 8 days has been reported in mosquitoes (*A. aegyptii*) and stable flies (*S. calcitrans)* (Spickler 2017, Sanz-Bernardo et al 2021). Variability in the mean duration of potential virus survival in vectors has been reported (Gubbins 2019), which should be considered along with the feeding behaviour of the likely vectors and vector life spans.

Recent experimental studies demonstrated mechanical transmission of LSD virus via *Stomoxys* species (including *S. calcitrans* – stable flies) (Sohier et al 2019, Issimov et al 2020). The ability for *Stomoxys* spp. to travel 21–28 km in 24 hours, in addition to virus survival times, means that *Stomoxys* activity can easily lead to localised spread (Gubbins 2019, Issimov et al 2020). Tabanid horseflies can transmit LSD virus (Sohier et al 2019).

Ticks are unlikely to play a role in rapid spread of LSD virus in outbreaks because of their slow mobility. However, prolonged survival of the virus in hard ticks may be possible, and ticks may therefore act as an environmental reservoir and facilitate overwintering of the virus in endemic areas (EFSA AHAW Panel 2015). Transstadial transmission has been demonstrated in hard ticks (*R. appendiculatus* and *A. hebraeum*) (Lubinga et al 2013). Transovarial transmission has been demonstrated in *R. decoloratus*; LSD virus was detected in the eggs (Tuppurainen et al 2011) and larvae (Lubinga et al 2014) of female *R. decoloratus* ticks fed on LSD virus–infected animals – this tick is closely related to the Australian cattle tick, *R. australis* (previously known as *R. microplus*). Transmission of LSD virus back to susceptible cattle was subsequently demonstrated (Tuppurainen et al 2013b). Larvae from *A. hebraeum* female ticks fed on LSD virus–infected cattle were positive for LSD virus on PCR testing, but cattle exposed to these ticks did not develop clinical signs or seroconvert (Lubinga et al 2014).

Although there is no evidence of multiplication of LSD virus in these vectors, it cannot be excluded (Tuppurainen et al 2017). Recent studies did not find evidence of viral replication in the vectors studied; thus this is unlikely to be epidemiologically important in transmission (Sanz-Bernardo et al 2021, Paslaru et al 2022). Viral retention has been shown as feasible under experimental conditions – for one species (*Culex pipiens*), for up to 10 days. However, it is unknown how this relates to field situations.

Live animals

Transmission of LSD virus is incompletely understood; however, transmission through direct contact between infected animals is believed to be inefficient and plays only a minor role in the epidemiology of the disease (OIE 2017).

LSD virus is present in nasal, lachrymal and pharyngeal secretions of infected animals, and in their semen, milk and blood (Thomas & Mare 1945, cited in Davies 1991b; Weiss 1968). Infectious LSD virus has been detected in saliva and nasal discharges for up to 18 days post-infection (Babiuk et al 2008) and in blood for up to 16–28 days post-infection (Tuppurainen et al 2005, 2011; Sanz-Bernardo et al 2021). Direct transmission between animals is likely to be more significant in animals managed under intensive scenarios (ie feedlot and dairy), and non-bloodsucking insects may play a role in transmission via secretions between animals in these contexts.

LSD virus is found at higher concentrations in skin lesions than in blood in animals with clinical disease (Sanz-Bernardo et al 2021).

LSD virus present in bull semen can be a source of infection for females (Tuppurainen et al 2017; see 'Semen and embryos from live susceptible animals').

LSD virus may be spread from cows to their progeny. There are reports of calves from infected cows being born with skin lesions; the virus is also thought to be rarely spread to suckling calves through infected milk, or from skin lesions on the teats (Tuppurainen et al 2017).

It is assumed that LSD virus is also excreted in vaginal secretions. The resistant nature of the virus would make venereal transmission very likely (Committee on Managing Global Genetic Resources 1993).

There is no carrier status for LSD virus (OIE 2017).

Carcasses

LSD virus is very resistant to inactivation, surviving in necrotic skin nodules for 33 days or longer, desiccated crusts for up to 35 days, and at least 18 days in air-dried hides (OIE 2017) – these may pose a risk of transmission if they are accessible to arthropod mechanical vectors. Although some arthropod vectors may feed on body exudates other than blood, the pathways that enable insects to mechanically transmit infection are uncertain. Nevertheless, application of insecticides containing repellents to carcasses before transport or burial is recommended (EFSA AHAW Panel 2015). Long-distance spread of LSD in Israel was associated with movement of infected carcasses to a disposal site (near where the new outbreak occurred), although a causal association was not proven (EFSA AHAW Panel 2015).

Most vectors of LSD virus are unlikely to feed on carcasses, and larvae under the skin that retain the virus throughout metamorphosis into the adult stage are very unlikely to transmit the virus. However, consideration should be given to the risk that feral pigs, wild dogs and carrion birds feeding on infected carcasses may potentially spread the virus. This slight risk means that there are benefits in

destroying carcasses of animals that exhibited clinical signs, preferably by burial on-site. Additional guidance on disposal options and methods can be found in the **AUSVETPLAN operational manual *Disposal***.

Animal products

Meat, meat products and casings, including use as animal feed

Although LSD virus may persist in the meat of infected animals (Weiss 1968), trade in meat for human consumption is not a significant risk for transmission of the virus. LSD virus has been found in meat and offal after experimental infection, although virus was not found in deep skeletal meat, and the risk of transmission through deep skeletal meat has been assessed as minimal (Kononov et al 2019).

WOAH recommends that the following commodities should not require any LSD-related conditions regardless of the status of the animal population of the exporting country: skeletal muscle meat, casings, gelatine and collagen, tallow, and hooves and horns.

Heat treatment of meatmeal from affected animals to a minimum internal temperature of 65 °C for at least 30 minutes will reduce the risk of LSD virus transmission (OIE 2017).

Australia has well-developed national guidelines and state legislation that ban feeding to all ruminants of all meals derived from all vertebrates, including fish and birds.

Milk and dairy products, including use as animal feed

High-temperature/short-time pasteurisation may reduce the infectivity of LSD virus in milk (OIE 2017). There is some evidence that conditions equivalent to the low-temperature/long-time method of pasteurisation (62 °C for 30 minutes) will inactivate capripoxviruses, but the presence of fat, protein and other solids in the milk may protect the virus (Wolff et al 2020). The low pH of cheese may also be insufficient to inactivate the virus. The thermal inactivation parameters are extrapolated from a single study on sheep pox virus and vaccinia virus, which did not include dairy media.

The risk of LSD virus transmission by milk not intended for animal consumption can be mitigated by pasteurisation and transport in closed containers (Tuppurainen et al 2017). As noted above, the WOAH recommendations for importation of milk and milk products include pasteurisation (OIE 2017).

Animal byproducts

Hides, skin, wool and other fibres

Spread of LSD into new regions via contaminated hides is possible (Spickler 2017). LSD virus may remain infectious for up to 18 days in air-dried hides (Weiss 1968).

The WOAH Terrestrial Code recommends the following treatments:

- dry-salting or wet-salting for at least 14 days
- 7 days in salt (NaCl) with the addition of 2% sodium carbonate (Na_2CO_3)
- drying for at least 42 days at a temperature of at least 20 °C.

However, noting that hides with clinical LSD lesions are unlikely to be used because of damage and that clinical lesions are more significant for transmission than unaffected skin and tissue, partially

tanned hides and skins may still present a risk – that is, hides and skins that have undergone only liming, acid pickling or salting with 2% sodium carbonate at 50% pelt weight for 28 days (T Ingle, Australian Government Department of Agriculture, Water and the Environment, pers comm, 2021). Fully tanned hides and skins (eg 'finished' leather products such as shoes) are unlikely to present a risk of virus transmission.

Semen and embryos from live susceptible animals

Experimental transmission of LSD virus via semen from infected (but asymptomatic) bulls to both embryos and heifers has been proven (Annandale et al 2014). Shedding of LSD virus in the semen of infected bulls may be prolonged; virus has been isolated from semen for up to 42 days post-inoculation in an experimentally infected bull (Irons et al 2005). Viral DNA has been detected in all fractions of semen (Annandale et al 2010). Common semen processing methods are inadequate to wash semen free of LSD virus contamination (Annandale et al 2018).

Live LSD virus has been isolated from apparently healthy-looking testicular tissue in both clinical and subclinical animals (Kononov et al 2019).

There is one report of placental transmission of LSD virus (OIE 2017), and infected pregnant cows are known to deliver calves with skin lesions (Tuppurainen et al 2017). However, because of insufficient information, the International Embryo Technology Society has not classified LSD virus regarding the likelihood of its transmission via embryos.

Viral replication was observed in blastocysts following successful fertilisation of embryos with semen containing LSD virus during artificial insemination. LSD virus was also shown to affect the success of fertilisation during the experiments (Annandale et al 2019).

Specimens

LSD virus is not zoonotic, and transmission of disease via laboratory specimens is not considered a risk.

Waste products and effluent

There are no reports of isolation of LSD virus from faeces or urine.

Biological products

The use of live, attenuated vaccines for LSD has been associated with disease in some countries (Brenner et al 2009, Ben-Gera et al 2015). Transmission of LSD virus through other biological products is theoretically possible but not documented.

Nonsusceptible animals

Nonsusceptible animals may act as contaminated fomites for LSD virus and may facilitate the movement of arthropod vectors. Application of insect repellents to animals on affected and neighbouring farms may help mitigate these risks (Tuppurainen et al 2017).

People

People can potentially act as contaminated fomites for LSD virus. Tuppurainen et al (2017) recommend that people leaving affected premises disinfect their hands, boots and clothes, and subsequently wash their clothes at a water temperature above 60 °C. There is also merit in adding a sanitiser or disinfectant when washing clothing, towels and so on. Use of a clothes dryer on high setting is probably also very effective (as it is for killing ticks on clothes). Training station workers, transport operators and so on in correct disinfection technique will be vital to minimising the spread of the virus through their movements.

Crops, grains, hay, silage and mixed feeds

Experimentally, transmission has occurred between cattle in adjacent insect-proof enclosures only if they shared access to water or feed (Weiss 1968, Kononov et al 2020).

Long survivability of the virus in the environment and the potential for cross-contamination of feed may allow contaminated feed to act as a transmission pathway into naive populations (Spickler 2017).

Vehicles, including empty livestock transport vehicles

Vehicles can potentially act as contaminated fomites for LSD virus and may facilitate the movement of arthropod mechanical vectors. Cleaning and disinfection of the interior and exterior of the vehicle, and use of insecticides, mitigate these risks (Tuppurainen et al 2017).

Equipment, including personal items

Equipment and personal items can potentially act as contaminated fomites for LSD virus. Although not specifically documented, reuse of needles and surgical equipment contaminated with blood from viraemic animals may mechanically transmit LSD virus to uninfected animals. The Food and Agriculture Organization of the United Nations LSD field manual for veterinarians (Tuppurainen et al 2017) recommends decontamination of equipment on exit from affected premises.

2.4.3 Factors influencing transmission

The prevalence of insect vectors may affect the rate of transmission of LSD virus. This could account for the wide variation in morbidity (1–95%) in different situations (EFSA AHAW Panel 2015). The sharp reduction in transmission of LSD after cold weather and frosts, which are associated with reduced insect vector populations, supports this hypothesis. A clear seasonal pattern was observed in outbreak events in the Balkans, Turkey and the Russian Federation (EFSA 2020). Studies that modelled outbreaks have drawn similar conclusions (Allepuz et al 2019, Machado et al 2019).

Movement of infected stock has been the cause of much of the spread of LSD between countries. Whereas insect vectors are important in local spread, road and rail transport play an important role in rapidly spreading the disease over large geographical distances (Tuppurainen et al 2017). In the Balkans, LSD spread mostly up to 4 km at a time (via vectors), but transmission events occurred over much longer distances (via animal movements) (EFSA 2018, Manić et al. 2019). In Odisha state, India, the average distance between outbreaks in 2019 was 6 km inside districts and 54 km between districts (Sudhakar et al 2020).

Larger herd sizes and proximity to lakes (presumably related to increased vector activity) have been associated with an increase in prevalence of LSD (Sevik & Dogan 2017).

Viral uptake by vectors and spread of disease are much more efficient from clinically affected animals than asymptomatic animals (Sanz-Bernardo et al 2021).

2.5 Diagnostic criteria

2.5.1 Clinical signs

LSD typically presents in cattle and buffalo as fever, followed by the development of multiple nodules on the skin and mucous membranes; these nodules gradually become necrotic.

Clinical signs in cattle may range from inapparent to severe. Water buffalo may show similar clinical signs but are reported to be less severely affected (Sharawi & Abd El-Rahim 2011).

A fever of 40–41.5 °C may last 6–72 hours, occasionally up to 10 days, and is accompanied by increased lacrimation, increased nasal and pharyngeal secretions, loss of appetite, reduction in milk production, varying degrees of depression and reluctance to move.

Within 1–2 days, a cutaneous eruption of nodules occurs, which may cover the whole body. The most common sites are the head and neck, perineum, genitalia and udder, and limbs. The nodules are 5–50 mm or more in diameter, initially appearing as round, circumscribed areas of erect hair, firm and slightly raised from the surrounding skin. There is hyperaemia, and drops of serum appear on the surface. The lesions are full skin thickness, involving the epidermis, dermis and subcutis, which may be oedematous. Regional lymph nodes are enlarged and oedematous.

Lesions develop in the muzzle, nostrils, mouth and pharynx. They show a ring-like margin where there has been separation from the surrounding healthy epithelium. Lesions in the larynx and trachea, and throughout the alimentary tract, especially the abomasum, become ulcerated and necrotic. Mucopurulent nasal discharges, persistent hypersalivation, coughing, and stertorous (snoring) and often distressed respiration result. Inflammation of the conjunctiva and cornea of the eyes is common.

Inflammatory and oedematous swellings of the limbs, brisket and genitalia may develop. Skin lesions become necrotic. Some remain in situ, and others slough, leaving a hole of full skin thickness, known as a 'sitfast', which becomes infected by pus-forming bacteria. Large areas of skin may slough. Lesions in the skin, subcutaneous tissue and muscles of the limbs, together with the severe skin inflammation caused by secondary infection of lesions, greatly reduce mobility. Rapid deterioration in body condition results, and animals that recover may remain in extremely poor condition for up to 6 months.

Pneumonia is a common and often fatal complication. Absence of oestrus cycles or abortion is frequent in females, and painful genitalia in bulls can prevent them from serving. Live neonates or aborted fetuses from infected cows may show skin lesions following parturition.

The lesions may persist for 4–6 weeks, and final resolution may take 2–6 months.

Morbidity rates vary greatly and range between 1% and 95% (EFSA AHAW Panel 2015). Mortality rates up to 75% have been reported (Babiuk et al 2008), but 1–5% is more usual (Davies 1991a).

In experimental studies, only about 50% of infected animals may develop clinical signs, but the majority may become viraemic (Tuppurainen et al 2005, Osuagwuh et al 2007, Annandale et al 2010, Sanz-Bernardo et al 2021).

2.5.2 Pathology

Gross lesions

On autopsy, nodules may be found in subcutaneous tissues, muscle fascia and muscles, which are grey–pink with caseous necrotic cores. The subcutis is infiltrated by red, watery fluid. Similar nodules may be scattered through the nasopharynx, trachea, bronchi, lungs, rumen, abomasum, renal cortex, testicles and uterus (DoA & CSIRO 2019). Aborted fetuses may show skin lesions (Spickler 2017).

Microscopic lesions

Prozesky & Barnard (1982) described the histopathology seen with LSD. Clinically affected cattle have a granulomatous reaction in the dermis and hypodermis that extends to the surrounding tissue. In the early stages, a vasculitis and lymphangitis with accompanying thrombosis and infarction can be seen, with resultant necrosis and oedema. Borrel cells or 'cellules claveleuses' (epithelioid cells that infiltrate the lesions), and intracytoplasmic inclusion bodies – similar to the inclusions found with all pox viruses – can be demonstrated on histology.

Electron microscopy reveals virus particles indistinguishable from the orthopoxviruses. These can be readily differentiated from the virus particles of contagious ecthyma (also known as contagious pustular dermatitis, scabby mouth or orf).

2.5.3 Differential diagnosis

The following diseases or conditions should be considered in the differential diagnosis of LSD (OIE 2017).

Endemic:

- urticaria
- pseudo-lumpy skin disease (bovine herpes mammalitis; herpesvirus 2)
- bovine papular stomatitis (parapoxvirus)
- dermatophytosis
- pseudocowpox (parapoxvirus)
- pseudocowpox (parapoxvirus)
- streptothricosis (*Dermatophilus congolensis*)
- demodicosis
- insect or tick bites
- photosensitisation
- onchocercosis.

Exotic:

- rinderpest
- *Hypoderma bovis* infection
- skin tuberculosis.

2.5.4 Laboratory tests

Samples required

Diagnosis of LSD is based primarily on detection of the virus in lesions. Detection of antibody in serum may also aid diagnosis. Specimens that should be collected from live animals include blood (from animals with fever), serum, nodular fluid, scabs, and skin scrapings from lesions or skin biopsies.

Virus can be detected in blood and secretions such as oral/nasal fluid, but is present in significantly lower concentrations and for shorter periods than in skin lesions. Non-skin samples should not be relied on for exclusion of disease.

At postmortem, a range of samples, both fresh and fixed, should be taken from skin lesions, lesions in the respiratory and gastrointestinal tracts, and other internal organs.

Following the initial diagnosis, a more restricted sample set, still based on sampling lesions, may be defined.

Transport of specimens

Specimens should be submitted in accordance with agreed state or territory protocols. Specimens should initially be forwarded to the state or territory laboratory for appropriate analysis, and assessment of whether further analysis will be required by the CSIRO Australian Centre for Disease Preparedness (CSIRO-ACDP), Geelong.

If the state or territory laboratory deems it necessary, duplicate samples of the specimens should be forwarded to CSIRO-ACDP for emergency disease testing, after the necessary clearance has been obtained from the chief veterinary officer (CVO) of the state or territory of the suspect case, and after the CVOs of Victoria and Australia have been informed about the case and the transport of the specimens to Geelong (for the first case). Sample packaging and consignment for delivery to CSIRO-ACDP should be coordinated by the relevant state or territory laboratory.

LSD virus is a security sensitive biological agent (SSBA). Entities handling and transporting samples known or suspected to contain LSD virus should ensure that they meet their obligations under the SSBA Regulatory Scheme.

For further information, see the **AUSVETPLAN management manual *Laboratory preparedness***.

Packing specimens for transport

Unpreserved tissue specimens should be chilled and forwarded with water ice or frozen gel packs. If delays of more than 48 hours are anticipated in transit, these specimens should be frozen, if practical, and forwarded packed in dry ice. Frozen specimens will result in a better diagnostic outcome than those that are not frozen, but it is recognised that there may be challenges in keeping specimens frozen when travelling long distances from remote areas.

2.5.5 Laboratory diagnosis

CSIRO-ACDP tests

The testing method used by CSIRO-ACDP is shown in Figure 2.1. Further details of tests currently available at CSIRO-ACDP are shown in Table 2.1.

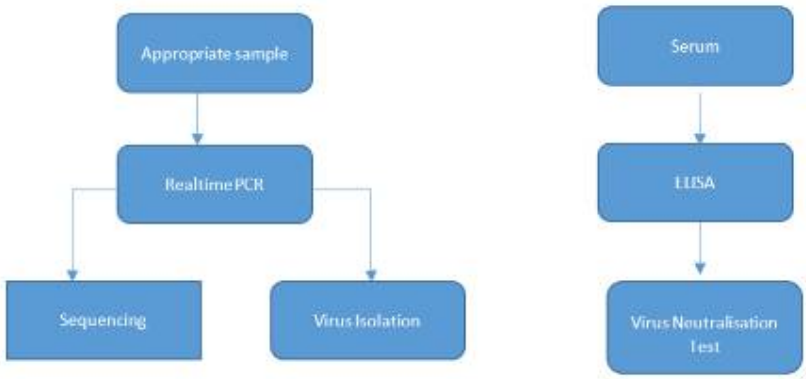

Figure 2.1 Current approach to diagnostic testing at CSIRO-ACDP for LSD

Table 2.1 Laboratory tests currently available at CSIRO-ACDP for diagnosis of LSD

Test	Specimen required	Test detects	Time taken to obtain result
Agent detection			
Capripoxvirus real-time PCR	Scabs, blood, tissues or cultured virus	Viral DNA	4–5 hours
LSD virus real-time PCR	Scabs, blood, tissues or cultured virus	Viral DNA	4–5 hours
Agent characterisation			
Sequencing	Scabs, blood, tissues or cultured virus	Viral genome	2 days
Virus isolation	Scabs, blood or tissues	Virus	5–10 days
Serology			
ELISA	Serum	Antibody	4–5 hours
Virus neutralisation	Serum	Antibody	7 days

ELISA = enzyme-linked immunosorbent assay; PCR = polymerase chain reaction

Source: Information provided by CSIRO-ACDP, 2022 (refer to CSIRO-ACDP for most up-to-date information).

A number of real-time and gel-based PCR methods are available for detection of capripoxviruses, several of which are species-specific and allow differentiation of LSD virus from sheep pox virus and goat pox virus (Bowden et al 2008; Le Goff et al 2009; Lamien et al 2011a, b; Gelaye et al 2013). Recently, a PCR method allowing differentiation of eight pox viruses has been developed; this also allows differentiation of LSD virus from bovine papular stomatitis, pseudocowpox and cowpox viruses (Gelaye et al 2017). Virus may also be isolated from cell culture assays. Sequencing of the viral genome, either from primary samples or from cultured material, will further aid characterisation of the causative agent and provide useful information to inform understanding of the epidemiology of the disease.

A tentative diagnosis of LSD can be made by electron microscopy and histopathology of tissue samples; however, with the advent of molecular techniques, these methods are now less commonly used for diagnosis.

Other tests

The virus neutralisation test and ELISA tests are validated serological tests for LSD virus (OIE 2021). ELISA is the preferred test for serosurveillance. The virus can be detected in milk; however, sensitivity is reduced when milk is pooled, thus making bulk milk surveillance unfeasible (Milovanović et al 2020). As all members of the *Capripoxvirus* genus share a common neutralising antigen, serological assays cannot distinguish between the individual members of the genus.

The immune response to LSD virus infection is dominated by cell-mediated immunity. For disease surveillance, although it may be difficult to detect low titres in individual animals, a herd-based approach is reasonable.

Other serological tests for LSD, such as indirect immunofluorescence and immunodiffusion, are possible, but lack specificity, cross-reacting with related viruses. These are not currently available in Australia.

DIVA testing

Recently, PCR tests have been developed that can differentiate certain vaccine strain viruses from wild-type strains, potentially allowing the limited use of DIVA (differentiating infected from vaccinated animals) testing as part of a vaccination strategy. The efficacy of this test will need to be assessed for any newly developed vaccines.

Most DIVA approaches for other diseases depend on detection of a serological response to the agent, rather than direct detection of virus, and this capability is required for any longer-term monitoring of vaccinated populations. No such assay exists for LSD, but the development of novel vaccines may offer an opportunity for parallel development of a serological DIVA assay.

2.6 Resistance and immunity

Susceptible cattle of all ages can develop serious clinical disease if infected with LSD virus. In countries previously free from LSD, mortality rates up to 75% have been reported (Babiuk et al 2008), but 1–5% is more usual (Davies 1991a) once the disease becomes endemic with rapid spread likely.

Different cattle breeds show different susceptibilities to LSD (see Section 2.2).

Maternal immunity provides some protection to calves born to vaccinated or previously exposed cows (Davies 1991c). In countries where vaccination against LSD is used, calves are vaccinated at 3–4 months of age.

Active immunity develops in response to vaccination or previous exposure to capripoxviruses. All strains of capripoxvirus share a major neutralising site, so that animals that have recovered from infection or are vaccinated with one strain are resistant to infection with any other strain. Animals that have recovered from natural infection with capripoxviruses are thought to have lifelong immunity. They do not become carriers.

2.7 Vaccination

Australia

Vaccines against LSD are not currently available in Australia; however, a regulatory assessment of a candidate vaccine is underway.

Overseas

A range of live, attenuated, homologous (LSD virus) and heterologous (sheep pox and goat pox viruses) vaccines are commercially available overseas. These vaccines have predominantly been used for control of endemic disease and only recently employed for eradication purposes in certain areas (eg the Balkans).

Use of certain commercial vaccines from overseas can be risky (see Appendix 3 for further information).

2.8 Treatment of infected animals

There is no effective cure for LSD.

2.9 Control overseas

Control of LSD overseas has invariably involved vaccination of cattle and buffalo with heterologous or homologous vaccines. Accompanying measures have differed according to the overall objective of a country's control program.

In endemic countries, herds are vaccinated annually and usually before periods that are associated with a high risk of transmission, to reduce overall clinical disease burden. Stamping out or other eradication activities are not usually undertaken in this scenario because the goal is to minimise the

clinical effects, not eradicate disease from a region. The vaccine used is ideally homologous, but heterologous vaccines are also used for LSD control where goat pox and sheep pox are also present, and resources are limited.

Prevention or eradication of the disease requires additional measures.

Refer to Appendix 4 for further information.

3 Implications for Australia

3.1 Potential pathways of introduction

The most likely route for introduction of lumpy skin disease (LSD) into Australia is entry of vectors carrying the virus to northern Australia following establishment of the disease in neighbouring countries to the north.

Currently, the potential for LSD to enter Australia via insects from countries in the region is high – especially since the disease has been detected in Indonesia. There is an increased risk of infected insects translocating across the seas north of Australia or entering through international ports, despite disinsectation protocols; changing insect resistance profiles may alter the risk rating for this entry pathway (Schmidt et al 2019).

With cattle produced in many parts of Australia and water buffalo present in northern Australia, it is reasonable to assume that infection would establish and an outbreak would occur if infected vectors encountered cattle or water buffalo. Extensive grazing of cattle and buffalo across northern Australia may lead to delays in recognition of an incursion.

Spread of LSD by the movement of infected animals that then interact with transmission vectors is one mechanism by which the disease is spread to new premises or new areas. However, there is little possibility of the disease entering Australia by this means because live bovids or their germplasm are not imported from LSD-endemic countries.

Introduction of LSD via insects entering Australia on aircraft or ships represents a relatively low risk because LSD virus has a short survival time in insects, and the numbers of vectors entering Australia in this way would be low. However, the World Organisation for Animal Health (WOAH) recommends that disinsectation be conducted on aircraft coming from countries where animal diseases transmitted by insect vectors are present.

Because of the long survivability of the virus in the environment, stockfeed, supplements and fomites such as skins, hides or equipment may act as a transmission pathway into naive populations. However, Australia's strict biosecurity rules mean that this route would pose a low risk of introduction.

3.2 Social, economic and environmental effects

LSD is one of the biggest biosecurity threats to Australia's cattle (and buffalo) industries; the effect on animals and animal products would be significant. Trading partners would be expected to introduce emergency measures until any outbreak situation became stable, significantly disrupting exports of meat, dairy and other bovine-derived animal products. The impacts may include closure of markets, increased testing requirements, increased requirements for pre-export quarantine, vaccination requirements, and reductions in price premiums for Australian commodities.

The Meat & Livestock Australia *State of the industry report 2020*[8] records that Australian beef exports were valued at $10.8 billion in 2019 and that Australian live cattle exports were valued at $1.6 billion in 2018–19, with 1.3 million animals exported. The gross value of Australian cattle and calf production (including live cattle exports) in 2019–20 is estimated at $15.1 billion (ABARES Agricultural Commodities, September 2020). Australian dairy product exports were valued at $3.3 billion in 2021,

[8] www.mla.com.au/news-and-events/industry-news/state-of-the-industry-report-2020-released

and the dairy industry also contributed to high-value live export of heifers and export of meat commodities (Dairy Australia 2021). The full range of bovine-derived products affected would depend on individual trading partners' requirements for these commodities.

An incursion of LSD is very likely to involve an extended disease response and surveillance to establish proof of freedom. Under WOAH provisions, the earliest time to claim freedom from LSD is 14 months after stamping out of the last case or vaccinated animal. Disease response activities of naive countries trying to eradicate the disease (eg in the Balkans) have lasted many years. A swift return to country freedom status is also impeded by uncertainties about the ability of LSD virus to overwinter and persist in the environment. Trade impacts may occur before formal notification from Australian authorities to WOAH.

Most of northern Australian is dependent on cattle production and would suffer significant socioeconomic impacts in the event of an outbreak of LSD in Australia.

If stamping out of large numbers of animals was required, there would be a negative societal reaction to the killing of the animals, as well as effects on tourism and Australia's way of life.

3.3 Critical factors for an Australian response

Critical considerations for formulating a policy for the response to an incident of LSD in Australia include the following:

- LSD is a highly contagious disease of cattle (especially *Bos taurus*), with low mortality but medium to high morbidity predicted for a naive population. The disease has a characteristic clinical presentation, so should become apparent relatively soon after introduction where cattle are regularly observed.
- Responding to an incursion of LSD would be challenging in parts of Australia that have significant numbers of feral cattle and buffalo, and large areas that are only accessible with extreme difficulty (eg northern Australia, especially during the wet season). For example, administering vaccine to feral buffalo poses significant logistical difficulties.
- Susceptible cattle of all ages may develop serious clinical disease.
- Acute cases (the most common type in naive populations) should be readily diagnosed clinically.
- Identification of disease in feral or free-range buffalo and cattle may be difficult because these animals are not regularly observed.
- Recovered animals are immune, and there is no carrier state; however, recovery can be prolonged.
- Most infection is thought to result from mechanical transmission by insects.
- Under Australian conditions, understanding mechanical transmission by biting flies is important. Non-biting insects are also implicated. Daily flight ranges of flies and other insects will inform the likely transmission area.
- Fomites may be involved in spread of the disease.
- The virus is stable in the environment, especially in cool, shaded areas – this poses an increased risk for feedlots (and potentially live export depots in the north).
- The virus is susceptible to a range of disinfectants.
- Vaccination, if available, is recommended to support disease control procedures, because stamping out alone may not be sufficient to eradicate the disease.
- Vaccines are not currently available in Australia, so procurement of a stock of vaccine well in advance of any outbreak is vital. Vaccines vary in quality, so careful consideration must be given to the selection of any vaccine for use in Australia. A regulatory assessment of a candidate vaccine is underway.

- Market fluctuations due to public health perceptions or product withdrawals would reduce the value of the cattle industry.
- There is a risk that LSD could become endemic or be present in Australia for several years if the disease is not promptly controlled. Recurring incursions may be a risk if the disease becomes endemic in countries in the region.

4 Policy and rationale

4.1 Introduction

Lumpy skin disease (LSD) is a World Organisation for Animal Health (WOAH)–listed disease that has the potential for rapid spread, and has a significant negative impact on cattle production and trade.

4.1.1 Summary of policy

The premise of AUSVETPLAN as it underpins the Government and Livestock Industry Cost Sharing Deed in Respect of Emergency Animal Disease Responses (Emergency Animal Disease Response Agreement – EADRA) is the establishment of a mechanism to facilitate a rapid response to an outbreak of LSD, and control and eradication, or containment with a view to eradication, of the disease. Thus, the policy set out in this AUSVETPLAN response strategy is to eradicate LSD in the shortest possible time, while minimising social, economic, animal welfare and environmental impacts, using *stamping out* with or without *vaccination*,[9] supported by a combination of strategies, including:

- *immediate quarantine* of animals, animal products and fomites (facilities, equipment and other items) on infected premises (IPs) and dangerous contact premises (DCPs)
- rapid recognition and laboratory confirmation of cases
- immediate assessment of the epidemiological situation
- implementation of legislated *declared areas* for disease control purposes and to minimise the spread of infection
- *quarantine and movement controls* over animals, animal products and fomites in declared areas, to minimise the spread of infection
- *tracing and surveillance* to determine the source and extent of infection (including, as necessary, in feral animals), and to provide proof of freedom
- immediate stamping out on IPs and DCPs based on risk assessment to reduce disease transmission
  - *modified stamping out* (stamping out of clinically affected animals with nodules) is the priority
- assessment of likely vector species, their distribution and their ecology
- *management of insect vectors*, to minimise mechanical transmission of the virus
- *enhanced biosecurity* on all premises with cattle and buffalo
- *valuation and destruction* of cattle and buffalo on IPs and potentially on DCPs, subject to risk assessment
- *sanitary treatment and/or disposal* of destroyed animals and contaminated animal products, to remove sources of infection
- *decontamination and/or disposal of fomites* to minimise the spread of the virus from infected animals and premises
- *vaccination*, if available, to support eradication efforts
- provision of *epidemiological and other information* to support the resumption of international trade
- *zoning and/or compartmentalisation* (where appropriate) to support resumption of market access
- *management of feral cattle and buffalo populations*, where required, based on the epidemiological assessment

[9] Currently, no vaccines are available in Australia, and there may be difficulties with sourcing vaccine overseas because of regulatory requirements and biosecurity risk assessment for importation. Preparations to import appropriate vaccine should be made before LSD is confirmed in Australia.

- a public awareness campaign
- *industry engagement* to improve understanding of the issues, facilitate cooperation and address animal welfare issues.

Vaccination, if available, is recommended to support disease control procedures, because stamping out alone may not be sufficient to eradicate the disease. However, if an incursion is detected very early and there has been very limited spread, stamping out alone may be a feasible option. If vaccine is not available, an aggressive response should be mounted as quickly as possible, using all the strategies listed above, to attempt to eradicate the disease. The nature of the disease means that this may ultimately result in large numbers of cattle being slaughtered without complete control of the disease being achieved.

4.1.2 Case definition

For the purposes of this response strategy, a case of LSD is defined as laboratory-confirmed[10] infection with LSD virus in one or more cattle and/or buffalo with or without clinical signs.

Notes:

- Positive serology in the absence of detection of LSD virus, with no clinical or epidemiological evidence supporting infection, does not constitute a case.
- AUSVETPLAN case definitions dictate when a response to an emergency animal disease (EAD) incident should be undertaken. AUSVETPLAN case definitions do not determine when international reporting of an EAD incident is required.
- At the time of an outbreak, revised or subsequent case definitions may be developed with the agreement of the Consultative Committee on Emergency Animal Diseases (CCEAD).

4.1.3 Cost-sharing arrangement

In Australia, LSD is included as a Category 3 EAD in the EADRA.[11] When cost sharing of the eligible response costs of an incident is agreed, Category 3 diseases are those for which costs will be shared 50% by government and 50% by industry.

[10] See Section 2.5.5 for details of laboratory diagnosis.
[11] Information about the EADRA can be found at https://animalhealthaustralia.com.au/eadra.

4.1.4 Criteria for proof of freedom

The WOAH *Terrestrial animal health code* states that a country may be considered to be free from LSD when LSD is a notifiable disease in the country concerned and the country has been historically free from the disease.

When a case of LSD occurs in a country previously free from LSD, one of the following waiting periods are applicable to regain free status when a stamping-out policy has been applied:

- 14 months after the slaughter of the last case, or after the last vaccination if emergency vaccination has been used, whichever occurred last, and during which period clinical, virological and serological surveillance demonstrated no occurrence of infection with LSD virus
- 26 months after the slaughter of the last case, or after the last vaccination if emergency vaccination has been used, whichever occurred last, and during which period clinical surveillance alone demonstrated no occurrence of infection with LSD virus.

The levels and types of surveillance that are necessary to provide proof of freedom are discussed in Section 7.1. Physical examination of animals on risk premises will also be necessary.

Australia will need to provide detailed information to demonstrate that surveillance and examinations in both the free and infected areas have been adequate, that quarantine movement controls have been maintained, and that the virus is not present in insect populations.

4.1.5 Governance

Governance arrangements for the response to EADs are outlined in the **AUSVETPLAN *Overview***.

Information on the responsibilities of a state coordination centre and local control centre is available in the **AUSVETPLAN management manual *Control centres management* (Parts 1 and 2)**.

4.2 Control and eradication policy

LSD is primarily a mechanically transmitted vector-borne disease. Without sufficient susceptible hosts or sufficient infectious vectors, the transmission cycle in a region will slow and halt. Interrupting transmission cycles to stop progression should therefore focus on:

- animal movement controls, including the creation of cattle- and buffalo-free buffers
- stamping-out activities
- widespread regional vaccination
- vector control.

In declared areas, consideration of regional vaccination and/or development of cattle- and buffalo-free areas to create a minimum buffer of 80–100 km from the nearest IP is likely to be required to halt spread of LSD. This distance is recommended because of the long potential incubation period (up to 28 days); the continuous, local propagation by mechanical vectors; and the time required to develop effective immunity through vaccination (potentially 21–28 days). Spread rates of 1 km/day have been recorded (Tuppurainen et al 2020); therefore, a buffer of vaccinated animals of at least 40 km (80–100 km using a precautionary approach) would be needed ahead of the disease front. These distances are given as guidance based on successful overseas responses; the actual distance for Australian conditions will depend on climatic conditions, vector species, epidemiology and geography (see Section 4.2.1). Vectors present in Australia and their relative importance in the spread of LSD are

currently poorly understood – a better understanding will inform the creation of appropriate buffers in each specific situation. Buffers should ideally be based on sound epidemiological and geographic parameters rather than the classic circular shape (Tuppurainen et al 2020). Reactive local ring vaccination strategies in other countries have repeatedly failed to contain the disease. Appendixes 3 and 4 provide more context and history on why larger vaccination areas are required for an effective LSD response.

Animal movement controls are required to prevent movement of potentially infected animals. The long potential incubation period of LSD, coupled with the time it takes to develop effective immunity through vaccination and potential failure of the vaccine to induce immunity, means that animals that are at risk of infection or have been vaccinated should not be moved into uninfected areas.

The large number of cattle in Australia and the significant number of potential vectors mean that disease spread could be rapid. Eradication of virus from an infected area, including decontamination of the area, is a long-term project. Thus, initial response phases may also prioritise the creation of physical barriers against spread into new regions.

Stamping-out activities should prioritise clinically affected animals with nodules (ie modified stamping out), because these are the animals most at risk of providing virus for biting vectors to spread the virus within a region. Stamping out of all animals in an infected herd should be attempted if sufficient resources are available to ensure that this action will not impede vaccination activities.

Control (including appropriate treatments), destruction and sanitary disposal of risk materials and commodities are also required, because these items constitute additional potential transmission pathways.

Vaccination and stamping-out activities would be supported by a range of strategies, including ongoing epidemiological assessment, quarantine and movement controls, tracing and surveillance, disinsectation and use of insect preventives on premises at risk of contact, decontamination of premises and potentially contaminated fomites, enhanced biosecurity on premises with cattle or buffalo, vector management, industry engagement and public awareness campaigns.

These strategies may be complemented by the implementation of zoning and compartmentalisation, where appropriate, and this may support a return to international trade (see Section 4.2.4 for more detail).

4.2.1 Epidemiological assessment

Epidemiological investigation or assessment draws on multiple sources of information to build understanding of the disease and how it is behaving in an outbreak. This helps inform response decision making.

The key objectives for an epidemiological assessment will be to identify:

- the spatial distribution of infected and free animal populations
- potential vectors involved, including as potential amplifying hosts
- the relative competency of vectors
- virus survival in vectors
- the source of infection
- the prevalence of infection
- pathways of spread and the likely size of the outbreak
- risk factors for the presence of infection and susceptibility to disease (including weather and insect populations).

Epidemiological assessment, and tracing and surveillance activities (see Section 4.2.3) in an EAD response are interrelated activities. Early findings from tracing and surveillance will be inputs into the initial epidemiological assessment (eg considering spatial distribution of infection). The outcomes of the initial epidemiological assessment will then guide decisions on subsequent tracing and surveillance priorities.

The outcomes of the epidemiological assessment will also be used initially to determine the feasibility of eradication versus long-term control, and to guide the selection of other appropriate response measures (including the application of movement controls) and assess the progress of disease control measures.

Ongoing epidemiological assessment is important for any EAD response to aid evaluation of the continued effectiveness and value of response measures, and assessment of the progress of disease control measures. Ongoing epidemiological assessment will consider the outcomes of tracing and surveillance activities, and will contribute evidence to support any later claims of disease freedom.

4.2.2 Biosecurity and movement controls

Guidance on declared areas and premises classifications can be found in the **AUSVETPLAN guidance document *Declared areas and allocation of premises definitions in an EAD response***.

Quarantine

Quarantine will be immediately imposed on all IPs and DCPs. Individual IPs and DCPs will remain under quarantine until at least 56 days after the completion of disease control activities on the premises (see Section 5.3 for further guidance).

Quarantine will also be immediately imposed on suspect premises (SPs) and trace premises (TPs) on a risk-assessed basis. These properties will remain under quarantine until their status has been further classified through risk assessment. The time for lifting of quarantine from these premises will depend on their assessed status (ie assessed negative or reclassified as IP, DCP, etc).

Movement controls

Implementation of movement controls will be underpinned by the use of legally declared areas and the associated permitted movements to and from these areas. The assistance of police and other relevant authorities will be sought to enforce these, as necessary.

Section 6 provides details on movement controls for live animals, reproductive material (semen and in vivo–derived embryos), animal products and byproducts, waste products and effluent, vehicles, equipment, animal feed, people and other items that might be contaminated.

Cultural, logistical, land ownership and land type (eg land trust land vs freehold land) issues will need to be addressed.

4.2.3 Tracing and surveillance

Tracing will need to include the movements from any IPs of cattle, products, people, vehicles and other things, such as equipment and feedstuff, that could have been involved in transmission of LSD virus. The period to be covered should be from at least 28 days before the first clinical signs were seen on the initial IP to the time that movement restrictions were imposed.

The surveillance will include an epidemiological investigation of the possible vectors that are present, and the environmental and ecological factors that may influence their distribution and survival. Surveillance will also determine the extent of infection and of vector activity within the area of the IPs and DCPs, to enable a realistic restricted area (RA) and control area (CA) to be established.

If they have not been destroyed, cattle and buffalo on DCPs, TPs and SPs should be examined every day during the first 4 weeks of quarantine for signs of infection. If numbers are large, a statistically appropriate sample of animals on these premises must be examined.

Following destruction, disposal and decontamination on IPs, DCPs and vaccinated at-risk premises (ARPs), the waiting period before restocking will be long. It will be based on a risk assessment that considers criteria such as season, climatic conditions and the infection status of the area. Stocking with nonsusceptible species may be possible.

If sentinel animals are part of the surveillance and restocking strategy, they may be introduced to the property earlier than the recommended period for general restocking, based on risk assessment and the need to demonstrate the low-risk status of a given property sooner.

See Section 7.1 for further details on surveillance.

Tracing

Rapid trace-back and trace-forward of movements of high-risk items from IPs are essential to effectively contain LSD.

Trace-back will be applied for a minimum of 28 days (one incubation period) before the onset of clinical signs but may be up 56 days (two incubation periods) to allow for the possibility that the first reported case (index case) is not the primary case. Similarly, trace-forward will be applied for a minimum of 56 days before the index case and up to the time that quarantine was imposed. Given the extended incubation period, epidemiological analysis at the time may suggest that the periods for trace-back and trace-forward of movements should be extended.

For extensively managed properties and areas with free-ranging cattle and/or buffalo, consideration must be given to the timing of the most recent mustering, an estimation of the percentage of animals mustered from the area and other relevant information (eg data from the Bureau of Meteorology on weather conditions that may have brought vectors into the area).

Tracing should be prioritised according to the risk of further transmission events, particularly to other regions.

The primary means of transmission is vector spread between susceptible hosts, and thus the first priority for tracing is all live cattle and buffalo. This will be mainly domestic cattle, but consideration should be given to wild or feral animals if an epidemiologically significant population exists. Priority should also be given to predicting vector dispersal and expected rate of spread in the outbreak region. These predictions should be based on travel patterns of the biting vectors present and other relevant data, such as expected wind dispersal or significant meteorological events (eg storms, wind events).

Indirect transmission (eg via contact with fomites or animal products) is an inefficient method of transmission, but the risk will increase with greater volumes of contaminated materials or greater contact with cattle or buffalo. Therefore, tracing for products involved in indirect transmission pathways should be prioritised according to local or regional circumstances. For example, animal feed, hay and feed trucks (especially relevant for feedlot situations) are associated with large volumes of potential fomites coming into contact with cattle and buffalo and so should generally be a tracing priority for the commodity and fomite pathways.

Germplasm provides a direct pathway for transmission into animals in naive areas but is generally stored before use and therefore might be addressed by a national prohibition on using material collected after a certain date.

Although personal vehicles might have a role as contaminated fomites, this pathway would generally be ranked lower in prioritisation for tracing. However, strong on-farm biosecurity practices should include a record of vehicle movements onto and off the property.

Overall, tracing should include:

- cattle and buffalo, including wild and feral animals
- nonsusceptible species, which may require consideration as fomites
- dispersal and likely movement of vectors
- animal products – meat, offal, milk and dairy products, skins, hides, semen and embryos, and wastes from the processing of these items
- vehicles – milk tankers, livestock transport vehicles, feed trucks, farm visitors' cars, local government cars (eg rangers) and other vehicles (eg forestry contractors, service companies)
- materials – hay, straw crops, grains and mixed feed
- people and equipment – people who live on the property, veterinarians, tanker and other vehicle drivers, artificial insemination personnel, sales and feed representatives, tradespeople, technicians, visitors, other rural industry contractors (eg pregnancy testing contractors, artificial insemination contractors), and equipment moved off the property that may have been in direct contact with stock.

Follow-up investigation of premises identified by tracing should be prioritised according to the likelihood of transmission and the potential consequences for disease control activities.

Information management systems should be used to support tracing activities, as well as examination of farm records, and interviews with farm workers and managers. Databases for the National Livestock Identification System, and documents such as National Vendor Declarations and other movement records, or Animal Health Statements should be used to assist with tracing and epidemiological investigations.

Additional guidance on tracing can be found in the **AUSVETPLAN guidance document *Tracing and surveillance***.

Surveillance

Surveillance during an LSD outbreak will initially be aimed at:

- defining the extent of infection
- detecting new outbreaks
- identifying the vector species involved and their distribution
- demonstrating that infection is not present in the CA and outside area (OA).

This will be achieved by investigation of SPs, TPs and DCPs, and surveillance of premises in declared areas that have cattle and/or buffalo – that is, ARPs in RAs and premises of relevance (PORs) in CAs. Prioritising of surveillance should be risk based, and take into account the apparent rate of transmission, and profiles of cattle, buffalo and implicated insect vectors in the local context. Surveillance may also occur in the OA to follow up on traces, investigate suspect case reports and demonstrate that infection is not present.

Surveillance in extensively managed properties and areas with free-ranging cattle and/or buffalo may require postmortem examination following aerial shooting of cattle and buffalo.

The surveillance program will include clinical, serological, virological and molecular approaches to the surveillance of domestic and feral cattle and buffalo populations. In naive, unvaccinated herds, clinical surveillance for development of the characteristic generalised nodular presentation is reliable for detection. Molecular and virological surveillance of relevant vector populations may also be important.

See Section 7 for further details on surveillance and proof of freedom from LSD.

Additional guidance on surveillance can be found in the **AUSVETPLAN guidance document *Tracing and surveillance***.

4.2.4 Zoning and compartmentalisation for international trade

Where it is not possible to establish and maintain disease freedom for the entire country, establishing and maintaining disease-free subpopulations, through zoning and/or compartmentalisation,[12] may be considered.

In the case of a limited disease outbreak, a containment zone[13] may be established around the areas where the outbreak is occurring, with the purpose of maintaining the disease-free status of the rest of the country outside the containment zone.

All zoning applications would need to be prepared by the Australian Government in conjunction with the relevant jurisdiction(s) and agreed to by the CCEAD. Zoning is usually negotiated after a disease outbreak has begun.

Compartmentalisation applications typically need to be negotiated before an outbreak occurs, and will require input from the relevant industries.

Recognition of both zones and compartments must be negotiated between the Australian Government and individual overseas trading partners. Zoning and compartmentalisation would require considerable resources that could otherwise be used to control an outbreak. Careful consideration will need to be given to prioritising these activities, because the resulting competition for resources could delay the quick eradication of the disease and recognition of disease freedom.

Agreements between trading partners take time to develop, consider and finalise, because of the need to provide detailed information on activities such as biosecurity, surveillance, traceability and diagnostics to support the approach that is developed. An importing country will need assurance that

[12] With zoning, disease-free subpopulations are defined primarily on a geographical basis. With compartmentalisation, disease-free subpopulations are defined primarily by management practices (such as the biosecurity plan and surveillance practices of enterprises or groups of enterprises).

[13] WOAH defines a 'containment zone' as an infected zone within a previously free country or zone, which includes all suspected or confirmed cases that are epidemiologically linked and where movement control, biosecurity and sanitary measures are applied to prevent the spread of, and to eradicate, the infection or infestation. The Australian Government Department of Agriculture and Water Resources commissioned a report on what would be required for the establishment of containment zones in Australia. This report is available at www.ausvet.com.au/tools-resources.

its animal health status is not compromised if it imports from an established disease-free zone in Australia. Trading partners may not accept a zoning or compartmentalisation proposal, regardless of the information provided. Eradication of disease may be achieved before zoning or compartmentalisation applications are finalised.

The WOAH guidelines for zoning and compartmentalisation are in Chapter 4.4 and Chapter 11.9 of the WOAH Terrestrial Code.

4.2.5 Biosafety and biosecurity for personnel

Movements of all personnel onto and off high-risk premises (IPs, DCPs, dangerous contact processing facilities (DCPFs), SPs and TPs) should be restricted and subject to strict biosecurity measures, including change of clothes and footwear, decontamination procedures and record keeping (see Section 6.4).

Personnel involved in destruction, disposal and vaccination activities, and sampling of animals for laboratory testing, should wear appropriate personal protective equipment (PPE) to avoid contamination and potential onward transmission of the disease to cattle and buffalo. Appropriate PPE includes disposable coveralls and footwear. These should remain on the premises and be incinerated on-site.

Details of appropriate controls on the movement of people onto or off high-risk premises are provided in Section 6.4.11.

All other cattle and buffalo production premises, particularly those in declared areas, will be encouraged to practise good on-farm biosecurity to limit the possible transmission of LSD virus by people acting as contaminated fomites.

4.2.6 Biosecurity for equipment

Movements of all equipment (including vehicles) onto or off high-risk premises (IPs, DCPs, DCPFs, SPs and TPs), where permitted, should be restricted and subject to strict biosecurity measures, including disposal or decontamination procedures, and record keeping (see Section 6.4).

Equipment used in destruction, disposal and vaccination activities, and for sampling animals for laboratory testing should be considered contaminated and either disposed of on-site (see Section 4.2.12) or decontaminated (see Section 4.2.13).

Details of appropriate controls on the movement of equipment onto or off high-risk premises are provided in Section 6.4.14.

All other cattle and buffalo production premises, particularly those in declared areas, will be encouraged to practise good on-farm biosecurity to limit the possible transmission of LSD virus by equipment acting as contaminated fomites.

4.2.7 Animal welfare

An incursion of LSD into Australia would be a potentially catastrophic event for infected cattle herds. In the event of an LSD response, maintaining animal welfare standards, consistent with legislation, codes, and national standards and guidelines, is a priority.

Currently, there is no vaccine available for use in cattle before infection and no recognised veterinary treatment for cattle post-infection. An effective animal welfare response should include the rapid destruction of infected cattle and buffalo. It should also consider the destruction of cattle and buffalo at risk of infection to minimise the suffering of these animals.

Welfare issues can be expected to arise in cattle or buffalo infected with LSD. Early destruction of animals is required to prevent welfare issues. Managing welfare conditions is likely to be challenging in extensively managed pastoral areas, where the animals are not frequently observed.

Animal welfare issues may arise during the movement of animals as a result of border closures, the need for livestock inspection and quarantining. Welfare issues may also arise from the inability to transport animals, such as restrictions on movement of intensively housed animals (eg on feedlots) or of dairy animals to milking. Restrictions on the movement of milk and milk products off dairy premises may also necessitate the rapid drying-off of dairy animals, with associated welfare considerations.

If movement controls are applied over the longer term, welfare issues arising from increased stocking densities will need to be managed. Dealing with these welfare issues may include the use of emergency permits for movement or on-site destruction.

EAD respondents are required to refer to, and comply with, a range of existing welfare requirements, including:

- state and territory animal welfare legislation
- the **AUSVETPLAN operational manuals**, including ***Livestock welfare and management*** and ***Destruction of animals***, which describe in detail the recommended operational procedures for an EAD response
- the EADRA guidance document *Livestock welfare management and compensation principles for parties to the Emergency Animal Disease Response Agreement*
- the Australian Animal Welfare Standards and Guidelines,[14] which is a single animal welfare regulation model that can be adopted by each state and territory government; the standards are the legal requirements for livestock welfare, and the guidelines provide recommended practices to achieve desirable livestock welfare outcomes
- *Australian Animal Welfare Standards and Guidelines: land transport of livestock*, which has now been implemented by all states and territories.

Additional guidance on rapid drying-off of dairy cattle is available in the **AUSVETPLAN enterprise manual *Dairy processing*** [in preparation].

[14] www.animalwelfarestandards.net.au

4.2.8 Vaccination

Vaccine availability

Vaccines against LSD virus are not currently available in Australia; however, a regulatory assessment of a candidate vaccine is underway. The use of vaccination in combination with other control measures (including movement controls and culling) has been critical in the control of LSD overseas (EFSA AHAW Panel 2015). The European Union's experience in trying to control LSD led to several modifications of the control methods recommended by the European Food Safety Authority (originally just stamping out in 2015), resulting in a regional vaccination approach (EFSA 2017). An incomplete understanding of the role of vector species in disease transmission under Australian conditions and the difficulty in managing vector control may increase reliance on a safe and effect vaccine program in Australia.

Vaccination of animals well before exposure to infected vectors is advisable to induce protection before the period of peak challenge. Development of protective immunity is expected to take up to 28 days post-vaccination (EFSA AHAW Panel 2015). Taking into account an incubation period of up to 28 days for clinical disease, this means that vaccination must be conducted well in advance of potential spread of LSD into a region to provide effective immunity and avoid vaccine failure (Gelaye et al 2015).

Currently, importation of an LSD vaccine would be subject to the issuing of import permit(s) from the Australian Government department responsible for agriculture. Supply and use of the vaccine in Australia will require an emergency permit and consent to import from the Australian Pesticides and Veterinary Medicines Authority. Vaccination will be approved by the National Management Group based on the recommendation of the CCEAD.

Spread of LSD due to vector dispersal would be expected during the period between detection of disease and the availability of vaccine in Australia. This will have implications for both the control measures implemented and the overall area affected during this interim period.

Vaccination strategy

If vaccine is to be used in Australia, depending on the type of vaccine used, several issues will need to be considered:

- Export market access will be affected by the use of vaccination in Australia.
- Because products (eg meat and milk) from vaccinated animals are considered safe for human consumption, these animals and products may still potentially enter the domestic market.
- Under an eradication policy, vaccinated animals must be considered potentially infected. Their presence may adversely affect export market access.
- The challenges of balancing the use of different vaccines with side effects and the potential for vaccine failure must be carefully considered in procuring a vaccine and deciding on the vaccination program to be used.

For further information on vaccination considerations, see Appendix 3.

LSD will continue to spread from foci of infection for as long as sufficient susceptible hosts and vectors exist. The preferred vaccination strategy for isolated foci of infection would therefore be to blanket vaccinate in large regional areas (eg all cattle and buffalo up to at least 80–100 km from an outbreak) to provide a sufficient buffer of immune animals to halt disease progression. This approach has been effective overseas (see Section 2.9 and Appendix 4).

Decisions on the boundaries of the vaccination area should take into consideration:

- the delay between administration of vaccination and development of peak immunity (approximately 21 days but up to 28 days, according to overseas experience using homologous vaccines)
- the potential for animals to incubate the disease for up to 28 days before being recognised
- in the northern pastoral region, the presence and location of boundary fencing, the location of water points, and the proximity to populations of feral cattle or buffalo.

The overlap of the first two of these factors has contributed to outbreaks in 'vaccinated' herds overseas. However, given the need to vaccinate as many animals as possible around infected herds, it is inevitable that some degree of vaccine failure will occur while a vaccination campaign is being instituted. Delaying or skipping the vaccination of herds in the immediate area at risk of transmission for fear of vaccination failure is not advised, because even herds with partial immunity will reduce the overall production of virus, the number of clinically affected animals and viral uptake by vectors, and thereby contribute to outbreak control.

In a scenario with widespread outbreaks, blanket vaccination at a state or territory level should be considered.

If an appropriate vaccine is available in Australia, vaccination to protect valuable genetic lines will also be considered (see the **AUSVETPLAN guidance document *Risk-based assessment of disease control options for rare and valuable animals***).

Management of vaccinated animals[15]

Vaccinated animals need to be permanently identified and easily identifiable to assist interpretation of clinical, serological and molecular tests used for surveillance once the outbreak has been controlled, particularly as no DIVA (differentiating infected from vaccinated animals) test is currently available.

A vaccinate-to-remove (delayed stamping-out) policy is preferred as part of completely eradicating LSD virus and returning to an LSD virus–free status with confidence. LSD virus may still circulate in vaccinated populations because:

- available vaccines offer incomplete protection, so a proportion of vaccinated animals will become infected if challenged with field virus
- available vaccines may be incompletely attenuated, so a proportion of vaccinated animals will develop clinical disease and shed vaccine virus.

Vaccinated animals would therefore be considered potentially infected. Under an eradication policy, their presence in the Australian herd may not be acceptable to overseas trading partners.

However, the overall situation should be reassessed once the outbreak has been controlled to decide whether stamping out or removal of these populations is still appropriate, taking into account the total number of herds affected and the impact of stamping out.

As well, the cost of controlling and eradicating an incursion of LSD into Australia needs to be balanced with the risk of reincursion in future monsoon seasons.

It is likely that the Australian Government will need to discuss health requirements for LSD with key markets in Southeast Asia with a view to allowing trade in cattle to continue.

[15] See Chapter 11.9 of the WOAH Terrestrial Code for details on recovery of free status following use of vaccination (www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/?id=169&L=0&htmfile=chapitre_lsd.htm).

4.2.9 Treatment of infected animals

There is no specific treatment for animals infected with LSD virus. To manage risks to animal welfare, including where destruction may be delayed, clinically affected animals should be isolated, protected from insects and provided with supportive care, where appropriate.

4.2.10 Treatment of animal products and byproducts

Meat from infected animals has not been implicated in the transmission of LSD. Although WOAH does not have any restrictions on the trade of meat, meat for human consumption in Australia still needs to meet the relevant Australian standard to ensure that it is a wholesome product. Movement controls will apply to the movement of meat within Australia (see Section 6.4.4).

Milk and milk products from cattle and buffalo, including from IPs, can be processed for human consumption if appropriately treated (ie pasteurised, or chemically treated by acidification). Alternatively, milk and milk products from cattle and buffalo on IPs can be chemically treated by acidification or heat treated (if the process is available on the premises) and buried on the premises. The reason for these treatments is the potential for vectors to contact milk that has been disposed of.

Feed, and wastes such as faeces and straw will be treated and disposed of on the premises.

Untreated cattle hides present a major risk. If they originate from IPs and DCPs within 28 days before diagnosis of the disease, they will be destroyed unless they are already at a processing plant, in which case they will be immediately treated or destroyed. Suitable treatments would include commercial tanning because the pH levels achieved during the normal commercial processing of skins and hides are sufficient to inactivate the virus. This applies to fully tanned, 'wet blue' (lightly or fully chrome tanned, but not dried) or 'wet white' (pretanned with aluminium sulfate, but limed and acid pickled only) skins and hides (DAFF 2001).

Virus can contaminate semen and embryos, which may be sources of infection, so semen and embryos collected from animals on IPs and DCPs after the likely date of infection will be destroyed. An informed judgment on semen and embryos in storage may be made when all relevant information is available.

Feedstuff from IPs will be destroyed.

4.2.11 Destruction of animals

Destruction plans should be developed for each premises in which animals may be destroyed.

Guidance on destruction methods can be found in the **AUSVETPLAN operational manual *Destruction of animals***.

Stamping out

Stamping out refers to the strategy of eliminating infection from premises through the destruction of live cattle and buffalo in a manner that permits appropriate disposal of carcasses and decontamination of the site. Where resources are limited, stamping out clinically affected animals (predominantly animals with skin nodules) should be prioritised because these animals will contribute significantly more to disease spread than asymptomatic animals.

Until a vaccine is available, movement controls and stamping out are key to containing (and potentially eradicating) LSD. However, the nature of the incursion and the time taken to detect it will likely influence the success of stamping-out activities and movement controls. Without access to a vaccine, successful containment and eradication will depend on a fast and aggressive response.

Where a vaccine is available, stamping out may be used in conjunction with movement controls and a stringent vaccination program. For stamping out in remote locations, there may be a delay between destruction and carcass disposal. In these cases, carcasses should be protected from predation and access by insect vectors, where possible. Destruction and disposal strategies will be logistically difficult, and public perceptions about animals left in situ following aerial shooting will need to be managed.

4.2.12 Disposal of animals, and animal products and byproducts

Carcasses, animal products and byproducts, feedstuff, wastes and bedding that may have been contaminated on IPs and DCPs will be disposed of as soon as possible to reduce exposure to vectors. The disposal method chosen will be influenced by the type of material to be disposed of, resources available, the local environment, the prevailing weather, legislative requirements (including environmental protection legislation) and the risk of disease transmission.

Where possible, disposal will be by burial, burning or composting on-site. Other methods and potential locations will be considered under certain circumstances, based on risk assessment. This is especially the case for inaccessible locations that require aerial shooting of feral or infected animals, where burying or burning of carcasses is not possible, and access of insect vectors to carcasses cannot be prevented. Regions where carcass disposal is challenging and/or 'destroy and let lie' policies are enacted (eg northern Australia) may allow propagation of disease and will need to be considered in vaccination programs.

If there is a delay between destruction and disposal, methods of vector control should be implemented, taking into consideration local vector species and population dynamics. For example, items for disposal could be sprayed with sodium hypochlorite or Virkon (for their virucidal properties), or chemicals from the pyrethroid family (to prevent insects feeding on carcasses).

Decontamination of all equipment and machinery involved in on-site disposal will be required.

Disposal must also be in accordance with the requirements in Section 6, and auditable in terms of biosecurity, traceability and financial requirements.

Additional guidance on disposal options and methods can be found in the **AUSVETPLAN operational manual *Disposal***.

Disposal of milk

Disposal of milk will not usually be required. If it is required based on a risk assessment, it will pose a major challenge for a dairying area, especially if large volumes of milk require disposal (depending on the time of year, and the location and size of the outbreak). Further information on the disposal of bulk milk can be found in the **AUSVETPLAN enterprise manual *Dairy processing*** [in preparation].

To limit the volumes of milk requiring disposal, dairy animals on premises subject to stamping out should be prioritised for destruction. For high-risk premises not subject to stamping out, options such as drying off cows (see the **AUSVETPLAN enterprise manual *Dairy processing*** [in preparation]) and using calves already on the farm may be considered to reduce the amount of milk that ultimately requires disposal.

4.2.13 Decontamination

Fomites such as bedding materials, feedstuff, footwear, clothing, and cattle-handling facilities and equipment will be appropriately decontaminated or destroyed.

Vehicles, people and equipment leaving the premises will be decontaminated. If decontamination cannot be reliably achieved, contact with cattle and buffalo will be prohibited for a specified period that will be determined by other disease control activities at the time (eg use of vaccination in cattle and buffalo).

Further information is available in the **AUSVETPLAN operational manual *Decontamination***, and in DoA & CSIRO (2019).

4.2.14 Wild animal management

Disposal of contaminated materials (including feedstuffs) and carcasses will be prompt to minimise exposure of susceptible feral cattle and buffalo, wild predators and vermin to LSD virus. Feral and free-ranging cattle and buffalo are very difficult to contain; where there are infected cattle, it is very likely that feral and free-ranging populations in the same geographical area will also become infected. Aerial shooting is the most common method of control for feral populations that cannot be mustered. Control measures must be such that wild animal populations are not induced to disperse out of the RA. Remoteness, accessibility and ruggedness of the terrain will require consideration when selecting destruction methods. A range of options may be available, such as baiting, trapping, decoy feeding and aerial shooting.

4.2.15 Vector management

With input from an entomologist, a vector monitoring program will be implemented to identify the vectors of concern. A targeted approach to vector control to break the transmission cycle will then be devised. Recent literature has found that *Stomoxys calcitrans*, *Culicoides nubeculosis* and *Aedes aegypti* are potentially efficient transmitters of LSD virus (Sanz-Bernardo et al 2021).

Since several vector species are present in Australia, a range of approaches may be required to manage the risks. These may include aerial and ground application of insecticides as ultra-low volume (ULV) fogs, and treatment of cattle with either a systemic insecticide (eg ivermectin), an insecticidal or insect-repellent ear tag, or a topical (eg pour-on) insecticide, ideally to both repel insects and reduce the population of target insects. The treatment radius would be determined by risk assessment. Topical insecticides that repel insects and prevent or reduce biting are preferred, to reduce the likelihood of a naive herd becoming infected. The use and application of each of these options would vary in different areas of Australia and during different seasons, and will need to take into account safety, efficacy, environmental and food safety issues.

Where practicable, insect-proof housing for animals might also be considered. Cattle and buffalo producers should be encouraged to avoid placing animals in paddocks with high levels of insect activity (eg swampy areas).

The area over which vector management is undertaken should be determined taking into consideration the local vector species, vector dispersal, vector breeding sites, and the possibility of windborne spread of vectors.

If infected source animals can be destroyed and disposed of quickly, the risk of transmission to new vector populations will be reduced. Ticks as vectors will require consideration with regard to ongoing transmission risk.

Expertise in areas such as virology (including arbovirology), vector epidemiology and mapping will be sought to assist with any outbreak, and help provide surveillance data and other advice for use in reopening international trade.

4.2.16 Public awareness and media

A considered public information campaign will help to address any public health concerns, and foster engagement and support for response activities.

Key public information messages in an outbreak of LSD will include:

- advice that LSD is not zoonotic
- advice that Australian beef and dairy products remain safe for human consumption
- information to support early recognition and reporting of the disease
- information to generate understanding of, and support for, disease control measures (eg movement controls, highlighting animal welfare; vaccination; culling)
- advice to address environmental concerns if aerial spraying for vector control is used
- advice on where more detailed information can be obtained.

Additional guidance on managing public information can be found in the **AUSVETPLAN resource document *Biosecurity incident public information manual***.

4.3 Funding and compensation

Details of the cost-sharing arrangements can be found in the EADRA.[16] Details of the approach to the valuation of, and compensation for, livestock and property in disease responses can be found in the **AUSVETPLAN operational manual *Valuation and compensation***.

[16] https://animalhealthaustralia.com.au/eadra

5 Declared areas and premises

When an emergency animal disease (EAD) is first suspected, the premises involved would undergo a clinical and/or epidemiological investigation. If the case definition, as defined in the relevant AUSVETPLAN response strategy, is met (ie the index case[17]), the relevant chief veterinary officer (CVO) or their delegate will determine the premises classification and may declare the premises an infected premises (IP).

After the identification of the first IP, a restricted area (RA) and a control area (CA) may be declared.[18] A transmission area (TA) may also be defined, if appropriate. All premises within these areas will be classified.

At the beginning of an EAD incident, the initial premises classifications would be IP, at-risk premises (ARP), premises of relevance (POR), unknown status premises (UP) and zero susceptible species premises (ZP).

Any premises within the RA or CA will have only one classification at any one time. After an epidemiological investigation, clinical assessment, risk assessment or completion of control measures, a premises may be reclassified.

Once the first IP has been identified, intelligence gathering through veterinary epidemiological investigations would quickly lead to the identification of suspect premises (SPs) and trace premises (TPs). These would be high priorities for follow-up investigation by the relevant state or territory authorities. In a worst-case scenario, an SP could become an IP; therefore, SPs need to be investigated as a matter of very high priority. Similarly, investigation and risk assessment of a TP might identify it as an IP, dangerous contact premises (DCP) or dangerous contact processing facility (DCPF). An SP or TP might also be assessed as negative and qualified as SP-AN or TP-AN, and eventually reclassified as an ARP, POR or ZP.

All premises classifications are subject to change as a result of a modification in the case definition(s) or investigation(s) as the incident response proceeds.

Classifications should be applied with information needs of managers in mind. They should assist managers to monitor and report progress. Premises classifications to be used should be agreed early in a response, so that control centre personnel can apply the correct and consistent classifications and definitions from the outset of the investigation and response.

[17] The first case to come to the attention of investigators

[18] This is invariably the case with highly contagious diseases (eg foot-and-mouth disease, equine/avian/swine influenza, classical swine fever) but may not apply to less contagious diseases (eg Hendra virus, anthrax, Australian bat lyssavirus).

5.1 Declared areas

Maintaining movement restrictions on areas for long periods has important implications for resource management, animal welfare, business continuity, and socioeconomic impacts on producers and regional communities.

During the course of an EAD response, it may become necessary for a CA or RA to be expanded, as additional geographical areas or new foci of infection are identified. Later in the response, as control is achieved, mechanisms for gradually reducing the size of the CA and RA can be introduced.

An EAD may involve multiple foci of infection, with several jurisdictions potentially involved. Since disease might be controlled at different rates in different areas, there may be the opportunity to progressively lift restrictions on an area basis. This would involve reclassifying previously declared areas (RAs and CAs), with a staged approach to lifting of movement restrictions. This is a key step in the recovery process and will have positive benefits on the community.

5.1.1 Restricted area (RA)

An RA will be an appropriately sized declared area[19] within the CA and within which the disease is contained, and will focus on the highest-risk regions, including all IPs and DCPs, and including as many SPs, TPs and DCPFs as practicable. Based on risk assessment, the RA is subject to intense surveillance and movement controls, and other relevant disease controls. The purpose of the RA is to minimise the spread of the EAD. The RA does not need to be circular but can have an irregular perimeter, provided that the boundary is initially an appropriate distance from the nearest IP, DCP, DCPF, SP or TP. Multiple RAs may exist within one CA.

The boundaries will be modified as new information becomes available, including from an official surveillance program. The actual distance in any one direction will be determined by factors such as terrain, the pattern of livestock movements, livestock concentrations, the weather (including prevailing winds), the distribution and movements of relevant wild (including feral) animals and known characteristics of the disease agent. In practice, major geographic features and landmarks, such as rivers, mountains, highways and roads, are frequently used to demarcate the boundaries of the RA. Although it would be convenient to declare the RA based on local government areas, this may not be practical, as such areas can be larger than the particular circumstances require.

5.1.2 Control area (CA)

A CA is a disease-free buffer between the RA and the outside area (OA). Specific movement controls, surveillance strategies and other relevant disease controls will be applied within the CA to maintain its disease-free status and prevent spread of the disease into the OA.

An additional purpose of the CA is to control movement of cattle and buffalo for as long as is necessary to complete tracing and epidemiological studies, to identify risk factors and forward and backward risk(s).

The CA will be a larger declared area around the RA(s) – initially, possibly as large as the state or territory in which the incident occurs – where restrictions will reduce the risk of disease spreading from the RA(s). The CA will have a minimum radius of at least 80–100 km beyond the boundary of the RA. The actual distance in any one direction will be determined by factors such as terrain, the pattern

[19] As defined under relevant jurisdictional legislation

of livestock movements, livestock concentrations, the weather (including prevailing winds), the distribution and movements of relevant wild (including feral) animals, and known characteristics of the disease agent. In practice, major geographic features and landmarks, such as rivers, mountains, highways and roads, are frequently used to demarcate the boundaries of the CA. The boundary will be adjusted as confidence about the extent and distribution of the incident increases.

In general, surveillance and movement controls will be less intense in the CA than in the RA, and disease-susceptible animals and their products may be more likely to be permitted to move under permit within and from the area than those originating from the RA.

5.2 Other areas

5.2.1 Transmission area (TA)

A TA is not a legally declared area, but may be useful in epidemiological modelling to provide some guidance on where transmission of the disease may occur over time, based on the activity and range of the vectors that carry lumpy skin disease (LSD) virus.

While competent vectors are not clearly defined in the Australian context, the extent of the TA should take into consideration the likely range of possible vectors, the prevailing weather, and the possibility of wind dispersal and movement with moving stock.

5.3 Premises classifications

Detailed guidelines for classifying premises statuses are provided in the **AUSVETPLAN guidance document *Declared areas and allocation of premises classifications in an emergency animal disease response***. Definitions are in the glossary.

5.3.1 Premises status classifications

For LSD, the premises classifications to be used are:

- infected premises (IP)
- suspect premises (SP)
- trace premises (TP)
- dangerous contact premises (DCP)
- dangerous contact processing facility (DCPF)
- approved processing facility (APF)
- approved disposal site (ADS)
- at-risk premises (ARP)
- premises of relevance (POR)
- resolved premises (RP)
- unknown status premises (UP)
- zero susceptible species premises (ZP).

5.3.2 Qualifiers

Refer to the **AUSVETPLAN guidance document** ***Declared areas and allocation of premises classifications in an emergency animal disease response*** for more detail on qualifiers.

For LSD, the qualifiers to be used are:

- assessed negative (AN)
- sentinels on site (SN)
- vaccinated (VN).

5.4 Reclassifying premises and previously declared areas

Maintaining movement restrictions on areas for long periods has important implications for resource management, animal welfare, business continuity, and socioeconomic impacts on producers and regional communities. Therefore, attention should be given to reclassifying premises and previously declared areas as quickly as possible.

Detailed guidelines for reclassifying previously declared areas are provided in the **AUSVETPLAN guidance document** ***Declared areas and allocation of premises classifications in an emergency animal disease response***.

6 Movement controls

6.1 Principles

General principles for movement controls for managing emergency animal diseases (EADs) are provided in the **AUSVETPLAN guidance document *Movement controls***.

Key considerations for movement controls for managing lumpy skin disease (LSD) are as follows:

- LSD is primarily a mechanically transmitted vector-borne disease. Biting vectors continually spread the disease as they encounter naive hosts, which, in turn, encounter new vectors. Infected animals (including vaccinated animals) present a significant, proven risk of spread to new areas when moved, including outside declared areas.
- Transmission may also occur by direct and indirect pathways between animals and involving their secretions; however, these pathways are less efficient.
- Animals with clinical disease are highly infectious.
- *Bos taurus* cattle appear more susceptible than *Bos indicus* cattle; however, all breeds should be treated as equally susceptible when implementing control policies.
- Infected animals may shed virus without showing clinical signs. Infected animals can incubate the disease for up to 28 days.
- LSD virus is relatively stable in the environment.
- Germplasm may carry and transmit infection.
- LSD virus is not known to be shed in the faeces or urine of naturally infected animals.

6.2 Guidelines for issuing permits

In an EAD event, quarantine and movement controls must strike a balance between quick and effective disease control and business continuity. Therefore, it is not appropriate to simply prohibit all movement of animals and products on a national scale. On the other hand, diligence needs to be applied to minimise the risk of further spread of the disease.

Recommended biosecurity and movement controls in each **AUSVETPLAN response strategy** provide guidance on which movements can be allowed and under what conditions. This is based on an analysis of the disease risks that are presented by a specific movement, of a specific commodity, at a specific time during the EAD response phase. Each disease response strategy will indicate whether a proposed movement is:

- allowed (under normal jurisdictional, including interstate, requirements)
- prohibited – except under the conditions of a general, special or emergency permit
- prohibited.

Permits may not be available until the relevant chief veterinary officer (CVO) provides approval for movements, and this may not be available in the early stages of a response. When assessing risk for the purposes of issuing a permit, the elements to consider may include:

- sources of risk
  - risk material such as live or dead cattle and buffalo, semen, embryos, meat, meat products, waste products, offal, paunch screenings, manure, render material, fertiliser, biological

specimens, casings, used wrappers and cartons, effluent and fomites (vehicles, people, nonsusceptible animals, crops, grains, hay, silage and mixed feeds)
  - presence of the disease agent on both the originating and destination premises, and uncertainty
  - location of source and destination premises
  - fate at destination premises (eg for slaughter vs for growing out)
  - current vector activity, if relevant
  - organisation and management issues (ie confidence in animal tracing and surveillance, biosecurity)
  - proposed use of the animals or products
  - proposed transport route
  - vaccination status of the animals, if relevant
  - security and monitoring at the destination
  - environment and natural events
  - community and human behaviour
  - risk of sabotage
  - technology
  - regulations and standards
  - available resources for compliance and enforcement
- areas of impact
  - livestock health (health of affected species, including animal welfare)
  - human health (including work health and safety), noting that LSD is not zoonotic
  - trade and economic impacts (including commercial and legal impacts)
  - environmental impacts
  - organisational capacity
  - political impacts
  - reputation and image
  - proposed risk treatment measures
  - vaccination
  - destruction and disposal of animals and/or animal products
  - processing of product
  - disinfection or other treatment of animals, vehicles and fomites
  - vector control, if relevant
  - security
  - communication.

6.3 Types of permits

Permits are either general or special. Emergency permits are a form of special permit. Permits are legal documents that describe the animal(s), commodities or things to be moved, the origin and destination, and the conditions to be met for the movement. Either type of permit may include conditions. Once permit conditions have been agreed from an operational perspective, all permit conditions must be met for every permit. Both general and special permits may be in addition to documents required for routine movements between or within jurisdictions (eg health certificates, waybills, consignment notes, National Vendor Declarations).

General permit

General permits (GPs) are used for lower-risk movements, and create a record of each movement to which they apply. They are granted without the need for direct interaction between the person moving the animal(s), commodity or thing and a government veterinarian or gazetted inspector of stock. The permit may be completed via a webpage or in an approved place (such as a government office or commercial premises). A printed version, or electronic copy on an electronic device, of the permit must accompany the movement. The permit may impose preconditions and/or restrictions on movements. GPs may not be available until the relevant CVO gives approval for general movements, and this may not be available in the early stages of a response.

Special permit

Special permits (SpPs) are issued by the relevant government veterinarian or gazetted inspector of stock. They are used for higher-risk movements, and therefore require formal application and individual risk assessment. SpPs describe the requirements for movement of an animal (or group of animals), commodity or thing, for which a specific assessment has been conducted by the relevant government veterinarian or gazetted inspector of stock. A printed version, or electronic copy on an electronic device, of the permit must accompany the movement. The permit may impose preconditions and/or restrictions on movements.

Emergency permit

An emergency permit is an SpP that specifies strict legal requirements for an otherwise high-risk movement of an animal, to enable emergency veterinary treatment to be delivered, to enable animals to be moved for animal welfare reasons, or to enable any other emergency movement under exceptional circumstances. These permits are issued on a case-by-case basis under the authorisation of the relevant CVO.

Other movement requests

Movements not reflected within any of the movement control matrixes or narratives may be considered by the relevant jurisdictional CVO on a risk-assessed case-by-case basis.

6.4 Recommended movement controls

GPs and SpPs may not be available until the relevant CVO gives approval for movements, and this may not be available in the early stages of a response.

Permit conditions are listed in Appendix 2.

6.4.1 Live susceptible animals

Cattle on live export vessels will be assessed as individual consignments by the Department of Agriculture, Fisheries and Forestry and relevant jurisdiction(s) to determine options for cattle unloading or disposal.

See Section 6.4.10 for movement controls for nonsusceptible animals.

Other than to slaughter

Table 6.1 outlines the controls for the movement of live cattle and buffalo other than to slaughter.

Table 6.1 Movement controls for live animals moving other than to slaughter

	To	RA		CA	OA
From		**IP, DCP, SP, TP**	**ARP**	**POR**	
RA	**IP, DCP, SP, TP**	Prohibited	Prohibited	Prohibited	Prohibited
	ARP	Prohibited	Prohibited, except under SpP – conditions 1, 2, 3, 4, 5, 6, 7, 14, 18, 19	Prohibited	Prohibited
CA	**POR**	Prohibited	Prohibited	Prohibited, except under SpP – conditions 1, 2, 3, 4, 5, 6, 7, 14, 18, 19	Prohibited
OA		Prohibited	Prohibited	Prohibited, except under SpP – conditions 1, 2, 3, 4, 5, 6, 7, 18, 19	Allowed under normal jurisdictional or interstate movement requirements

ARP = at-risk premises; CA = control area; DCP = dangerous contact premises; IP = infected premises; OA = outside area; POR = premises of relevance; RA = restricted area; SP = suspect premises; SpP = special permit; TP = trace premises

To slaughter

Table 6.2 outlines the controls for the movement of live cattle and buffalo to slaughter.

Table 6.2 Movement controls for live animals moving to slaughter

	To	RA			CA	OA
From		**IP, DCP, SP, TP**	**DCPF[a]**	**APF**	**APF**	
RA	**IP, DCP, SP, TP**	Prohibited	Prohibited, except under SpP – conditions 2, 3, 4, 5, 6, 10, 12, 13, 14, 15, 18, 19	Prohibited	Prohibited	Prohibited
	ARP	Prohibited	Prohibited, except under SpP – conditions 1, 2, 3, 4, 5, 6, 12, 13, 14, 15, 18, 19	Prohibited, except under SpP – conditions 1, 2, 3, 4, 5, 6, 12, 13, 14, 15, 18, 19	Prohibited	Prohibited
CA	**POR (including premises with VN status)**	Prohibited	Prohibited	Prohibited, except under SpP – conditions 2, 3, 4, 5, 6, 12, 13, 14, 15, 18, 19	Prohibited, except under SpP – conditions 2, 3, 4, 5, 6, 12, 13, 14, 15, 18, 19[b]	Prohibited, except under SpP – conditions 2, 3, 4, 5, 6, 12, 13, 14, 15, 18, 19[b,c]
OA		Prohibited	Prohibited	Prohibited, except under SpP – conditions 2, 3, 4, 5, 6, 12, 13, 14, 15, 18, 19[d]	Prohibited, except under SpP – conditions 2, 3, 4, 5, 6, 12, 13, 14, 15, 18, 19[a,c]	Allowed under normal jurisdictional or interstate movement requirements

APF = approved processing facility; ARP = at-risk premises; CA = control area; DCP = dangerous contact premises; DCPF = dangerous contact processing facility; IP = infected premises; OA = outside area; POR = premises of relevance; RA = restricted area; SP = suspect premises; SpP = special permit; TP = trace premises; VN = vaccinated

a It is important to ensure that processing facilities have approved the receiving of live cattle and/or buffalo before the animals leave the premises.
b The transit route taken by the consignment will ideally not cross into an RA or transmission area (TA).
c Should only be issued if there is no APF available in the RA or CA.

d Should only be issued if there is no abattoir reasonably available in the OA.

6.4.2 Carcasses

The definition of the term 'carcass' for the purposes of AUSVETPLAN is 'the body of an animal that died in the field' (see the glossary).

Table 6.3 outlines the controls for the movement of carcasses.

Table 6.3 Movement controls for carcasses

	To	RA			CA		OA
From		**IP, DCP, SP, TP**	**ARP**	**ADS[a]**	**POR**	**ADS**	
RA	**IP, DCP, SP, TP**	Prohibited	Prohibited	Prohibited, except under SpP – conditions 1, 3, 4, 5, 6, 24, 25, 26, 27	Prohibited	Prohibited	Prohibited
	ARP	Prohibited	Prohibited	Prohibited, except under SpP – conditions 1, 3, 4, 5, 6, 24, 25, 26, 27	Prohibited	Prohibited, except under SpP – conditions 3, 4, 5, 6, 24, 25, 26, 27[b]	Prohibited
CA	**POR**	Prohibited	Prohibited	Prohibited, except under SpP – conditions 1, 3, 4, 5, 6, 24, 25, 26, 27	Prohibited	Prohibited, except under SpP – conditions 3, 4, 5, 6, 24, 25, 26, 27	Prohibited
OA		Prohibited	Prohibited	Prohibited, except under SpP – conditions 3, 4, 5, 6[c]	Prohibited, except under SpP – conditions 3, 4, 5, 6	Prohibited, except under SpP – conditions 3, 4, 5, 6[c]	Allowed under normal jurisdictional or interstate movement requirements

ADS = approved disposal site; ARP = at-risk premises; CA = control area; DCP = dangerous contact premises; IP = infected premises; OA = outside area; POR = premises of relevance; RA = restricted area; SP = suspect premises; SpP = special permit; TP = trace premises

a The ADS in the RA could be another IP for the purposes of communal disposal, with appropriate biosecurity conditions.
b This movement is only permitted if there is no ADS in the RA.
c The preference is to use an ADS within the OA, or, if none available, the CA, or, if none available, the RA.

6.4.3 Semen and embryos from live susceptible animals

Movements of fresh semen and embryos into, within and from the RA and CA should be prohibited.

Table 6.4 outlines the controls for the movement of frozen semen and embryos from live cattle and buffalo.

Table 6.4 Movement controls for frozen semen and embryos from live cattle and buffalo

	To	RA		CA	OA
From		**IP, DCP, SP, TP**	**ARP**	**POR**	
RA	**IP, DCP, SP, TP**	Prohibited, except under SpP – conditions 23, 29, 30	Prohibited, except under SpP – conditions 23, 29, 30	Prohibited, except under SpP – conditions 23, 29, 30	Prohibited
	ARP	Prohibited, except under SpP – conditions 23, 29, 30	Prohibited, except under SpP – conditions 23, 29, 30	Prohibited, except under SpP – conditions 23, 29, 30	Prohibited
CA	**POR**	Prohibited, except under SpP – conditions 23, 29, 30	Prohibited, except under SpP – conditions 23, 29, 30	Prohibited, except under SpP – conditions 23, 29, 30	Prohibited
OA		Prohibited, except under SpP – conditions 23, 29, 30	Prohibited, except under SpP – conditions 23, 29, 30	Prohibited, except under SpP – conditions 23, 29, 30	Allowed under normal jurisdictional or interstate movement requirements

ARP = at-risk premises; CA = control area; DCP = dangerous contact premises; IP = infected premises; OA = outside area; POR = premises of relevance; RA = restricted area; SP = suspect premises; SpP = special permit; TP = trace premises

6.4.4 Meat and meat products

The World Organisation for Animal Health (WOAH) recommends that the following commodities should not require any LSD-related conditions, regardless of the status of the animal population of the exporting country, because the risk of transmission of the virus is very low: skeletal muscle meat, casings, gelatine and collagen, tallow, and hooves and horns. Therefore, meat can be safely moved. However, movement controls on vehicles to avoid vector dispersal will still apply for the RA and CA (see Section 6.4.9).

Meat and meat products are still required to pass antemortem and postmortem inspection, to ensure the wholesomeness of the product. All meat that is to be exported must also comply with trading partner requirements, which may be more prescriptive than the WOAH requirements.

Table 6.5 outlines the controls for the movement of meat and meat products.

Table 6.5 Movement controls for meat and meat products

	To	**RA**		**CA**		**OA**
From		**IP, DCP, SP, TP, ARP**	**APF, DCPF, ADS**	**POR**	**APF, DCPF, ADS**	
RA	**IP, DCP, SP, TP, ARP**	Prohibited, except under GP – conditions 3, 5, 6	Prohibited, except under GP – conditions 3, 5, 6	Prohibited, except under GP – conditions 3, 5, 6	Prohibited, except under GP – conditions 3, 5, 6	Prohibited, except under GP – conditions 3, 5, 6
CA	**POR**	Prohibited, except under under GP – condition 3	Prohibited, except under under GP – condition 3	Prohibited, except under under GP – condition 3	Prohibited, except under under GP – condition 3	Prohibited, except under under GP – condition 3
OA	Allowed under normal jurisdictional or interstate movement requirements.					

ADS = approved disposal site; APF = approved processing facility; ARP = at-risk premises; CA = control area; DCP = dangerous contact premises; DCPF = dangerous contact processing facility; GP = general permit; IP = infected premises; OA = outside area; POR = premises of relevance; RA = restricted area; SP = suspect premises; TP = trace premises

6.4.5 Milk and milk products

The risk of transmission of LSD virus by milk not intended for animal consumption can be mitigated by pasteurisation and transport in closed containers (Tuppurainen et al 2017). The WOAH recommendations for importation of milk and milk products include pasteurisation.

Table 6.6 outlines the controls for the movement of milk and milk products.

Table 6.6 Movement controls for milk and milk products

	To	RA			CA		OA
From		**IP, DCP, SP, ARP**	**TP**	**APF, DCPF, ADS[a]**	**POR**	**APF, DCPF, ADS**	
RA	**IP, DCP, SP**	Prohibited	Prohibited	Prohibited, except under SpP – conditions 3, 5, 6, 21, 22, 31	Prohibited	Prohibited, except under SpP – conditions 1, 3, 5, 6, 21, 22, 31	Prohibited
	TP	Prohibited	Prohibited, except under SpP – conditions 3, 5, 6, 22, 28	Prohibited, except under SpP – conditions 3, 5, 6, 21, 22	Prohibited	Prohibited, except under SpP – conditions 1, 3, 5, 6, 21, 22	Prohibited
	ARP	Prohibited	Prohibited, except under SpP – conditions 3, 5, 6, 22, 28	Prohibited, except under SpP – conditions 3, 5, 6, 21, 22	Prohibited	Prohibited, except under SpP – conditions 1, 3, 5, 6, 21, 22	Prohibited, except under SpP – conditions 1, 3, 5, 6, 21, 22
CA	**POR**	Prohibited, except under SpP – conditions 3, 5, 6, 22, 28	Prohibited, except under SpP – conditions 3, 5, 6, 22, 28	Prohibited, except under SpP – conditions 3, 5, 6, 21, 22	Prohibited, except under SpP – conditions 3, 5, 6, 22, 28	Prohibited, except under SpP – conditions 3, 5, 6, 21, 22	Prohibited, except under SpP – conditions 1, 3, 5, 6, 21, 22
OA		Allowed under normal jurisdictional or interstate movement requirements.					

ADS = approved disposal site; APF = approved processing facility; ARP = at-risk premises; CA = control area; DCP = dangerous contact premises; DCPF = dangerous contact processing facility; IP = infected premises; OA = outside area; POR = premises of relevance; RA = restricted area; SP = suspect premises; SpP = special permit; TP = trace premises

a It is important to ensure that processing facilities have approved the receiving of milk and milk products before collection from the premises.

6.4.6 Hides, skin, wool and other fibres

LSD virus is found in the skin of infected animals, and unprocessed or partially processed hides pose a potential risk of transmission (via the contamination of mechanical vectors and fomites).

Hides that are fully tanned may be allowed to move without restriction, but records of their origin and the processing undertaken should be kept.

Partially tanned hides in the restricted area (RA) may move to an approved processing facility (APF) under SpP for further processing (full tanning). The issuance of an SpP will be based on risk assessment and subject to appropriate conditions to mitigate the identified risks (eg conditions to ensure biosecurity of the hides in transit, appropriate biosecurity and treatment at the APF, record keeping).

Movement of unprocessed hides in the RA is prohibited, except under SpP to an approved disposal site (ADS). The issuance of an SpP will be based on risk assessment and subject to appropriate conditions to mitigate the identified risks (eg conditions to ensure biosecurity of the hides in transit, appropriate biosecurity and disposal at the ADS, record keeping).

Unprocessed or partially tanned hides originating from the control area (CA) may move to an APF under SpP for further processing (full tanning). The issuance of an SpP will be based on risk assessment and subject to appropriate conditions to mitigate the identified risks (eg conditions to ensure biosecurity of the hides in transit, appropriate biosecurity and treatment at the APF).

Unprocessed or partially tanned hides originating from the outside area (OA) may be allowed to move without restriction, although records of their origin and any processing undertaken should be kept if they are processed at a premises within the RA or CA.

6.4.7 Other animal byproducts

Permission for movements of other animal byproducts will be based on risk assessment and subject to appropriate conditions to mitigate the identified risks.

6.4.8 Waste products and effluent

At the time the outbreak is declared, management of all wastes from the RA or CA will be based on risk assessment and subject to appropriate conditions to mitigate the identified risks. The risk assessment should take into consideration the origin (and therefore the expected LSD virus status) of the animal products, any processing undertaken on the waste material, the potential for any post-processing cross-contamination from infected material, and the intended site and means of disposal of the wastes (including any proposed use for irrigation).

6.4.9 Vehicles, including empty livestock transport vehicles and associated equipment

Empty livestock transport vehicles and associated equipment may play a role in spread of infection by acting as fomites and carriers of insect vectors.

Movements from infected premises (IPs), dangerous contact premises (DCPs) and trace premises (TPs) are prohibited except under SpP. The issuance of an SpP will be based on risk assessment and subject to appropriate conditions to mitigate the identified risks. Conditions will include thorough cleaning and decontamination, vector control, inspection before leaving the premises, and appropriate record keeping.

Movements from the RA to the CA, or from the CA to the OA, are prohibited except under SpP. The issuance of an SpP will be based on risk assessment and subject to appropriate conditions to mitigate the identified risks. Conditions will include thorough cleaning and decontamination, disinfection to destroy the virus, vector control, inspection before leaving the premises, and appropriate record keeping.

For movements originating on at-risk premises (ARPs) or premises of relevance (PORs), a GP is required, with the following conditions: vehicles and equipment are thoroughly cleaned before exit from the premises, and records are kept of the movement (origin, destination and cleaning undertaken).

Movements originating in the OA are allowed without restriction.

6.4.10 Nonsusceptible animals

Nonsusceptible animals may play a role in spread of infection by acting as fomites.

Movement of nonsusceptible animals from IPs, DCPs, TPs and SPs will be based on risk assessment and subject to appropriate conditions to mitigate the identified risks (eg cleaning to remove mud, limiting access to cattle and buffalo at the destination). The risk assessment and conditions applied should also consider the potential for vector movement associated with the proposed animal movement; for example, some species of ticks may be present on both horses and cattle.

Movement of nonsusceptible animals from ARPs and PORs will also be based on risk assessment, taking into consideration the factors outlined above.

Movement of nonsusceptible animals from the OA is allowed without restriction (although permit requirements and conditions may apply to the movement of vehicles out of declared areas – see Section 6.4.9).

6.4.11 People

People may play a role in spread of infection by acting as fomites.

The conditions applied to movements of people off IPs, DCPs, SPs and TPs should be based on risk assessment, taking into consideration any potential contact with livestock and contaminated environments. Where the assessed risk is high, a change of clothes, headwear and footwear, or decontamination procedures, and record keeping should be implemented. Because viruses can be transmitted in nasal cavities, hair and so on, consideration should also be given to the potential need for showering before entering another property where there are cattle or buffalo.

For ARPs, PORs and premises in the OA, no specific controls are required, but owners should be encouraged to enhance biosecurity measures on their premises to limit the movement of potential environmental contaminants (see also Section 4.2.5).

6.4.12 Specimens

The movement of biological specimens for laboratory testing is allowed without restriction.

6.4.13 Crops, grains, hay, silage and mixed feeds

Crops, grains, hay, silage and mixed feeds from IPs, DCPs, SPs and TPs may present a risk of transmission by acting as fomites.

Movements of these items should be based on risk assessment, taking into consideration a range of factors, including their location on the property (and the potential for contamination or cross-contamination), the time of harvest (feeds harvested on the premises within two incubation periods from the onset of infection would be considered high risk), the intended end use, and any processing to be undertaken. Consideration should be given to the possibility of using only feed that is from a FeedSafe-accredited supplier or has a vendor declaration stating that the feed has not come into contact with cattle.

Potential animal welfare issues – especially for feedlots, where bringing feed into the premises is vital – will need to be considered in the risk assessment process.

Movement of crops, grains, hay, silage and mixed feeds from ARPs should also be subject to risk assessment, taking into consideration the factors outlined above and the proximity of the ARP to known and expected areas of infection. Movements from the RA to the CA or OA are prohibited except under GP, with conditions 3, 5 and 6 (see Appendix 2).

Movement of crops, grains, hay, silage and mixed feeds from premises in the CA or OA to the RA is prohibited except under GP, with conditions 3, 5 and 6 (see Appendix 2).

6.4.14 Equipment, including personal items

Equipment that has had direct contact with cattle, buffalo or contaminated environments – or may be associated with potentially infected vectors – should be managed in the same manner as empty livestock transport vehicles and associated equipment (see Section 6.4.9).

Movements of other equipment and personal items are allowed without restriction.

6.4.15 Sales, shows and other events

Sales, shows and other events involving cattle or buffalo in declared areas are prohibited.

6.4.16 Stock routes and rights of way

Movements of cattle and buffalo on stock routes and rights of way in declared areas are prohibited.

6.4.17 Animal movements for emergency (including welfare) reasons

Permission for the movement of animals for emergency (including welfare) reasons will be based on risk assessment and subject to appropriate conditions to mitigate the identified risks.

6.4.18 Other movements

Permission for other movements will be based on risk assessment and subject to appropriate conditions to mitigate the identified risks.

7 Surveillance and proof of freedom

7.1 Surveillance

The key objectives and priorities for surveillance in response to an outbreak of lumpy skin disease (LSD) are outlined in Section 4.2.3. General considerations, and those specific to surveillance for LSD virus, are discussed below. The approach to surveillance on premises of different status is then outlined.

7.1.1 General considerations

General considerations for surveillance for LSD include the following:

- Evidence to support later proof of freedom should be collected throughout the response.
- Appropriate biosecurity measures must be used to prevent disease spread by surveillance activities; this includes preventing unnecessary property visits.
- Surveillance regimes may vary with different premises statuses; higher-risk premises will be subject to more intense surveillance.
- All properties with cattle and/or buffalo within declared areas should be recorded on the information management system as soon as practicable, to enable generation of surveillance and tracing schedules and reports, and management of premises classifications.
- A standardised investigation protocol, and reporting and laboratory submission forms should be used.
- Following field surveillance visits, reporting, debriefing and provision of samples to the laboratory should follow a schedule that minimises delays in laboratory diagnosis.
- Communication strategies targeted at producers and animal health professionals (eg veterinarians, stock inspectors, meat inspectors) should outline key clinical signs, to encourage the early reporting of any suspicions of LSD to government veterinary services.

7.1.2 Specific considerations

Specific considerations for surveillance for LSD include the following:

- Surveillance for LSD virus will include an epidemiological investigation of the potential vectors that are present, and the environmental and ecological factors that may influence their distribution and survival. Surveillance will also determine the extent of infection and vector activity within the area of infected premises (IPs) and dangerous contact premises (DCPs), to enable a realistic restricted area (RA) and control area (CA) to be established.
  - There is a strong possibility that the disease will have already spread at the time of initial diagnosis, so establishment of RA and CA boundaries must account for the need for wider surveillance to establish the extent of spread (EFSA AHAW Panel et al 2021).
  - Allowance should be made for the possibility of virus overwintering in arthropod vectors, with subsequent seasonal resurgence of the disease.
  - Transovarial, transstadial and mechanical (intrastadial) transmission by hard tick species has been reported.
  - The National Arbovirus Monitoring Program undertakes surveillance of midge populations in Australia and may provide information to support an LSD virus surveillance program.

  - Public health vector monitoring programs may provide information on other potential vector populations in Australia.
- Surveillance of feral cattle and buffalo populations in areas where disease is present will be important, because these may act as reservoirs of infection.
- Clinical surveillance should include groups of animals seen as high risk (eg through enhanced clinical inspection of livestock at abattoirs, saleyards and other aggregation points).
- In vaccinated populations, the severity of clinical disease may be significantly reduced; as a result, passive surveillance may have poor sensitivity for detection of disease. Therefore, active surveillance based on clinical examination (67–75% sensitivity in experimental trials) with confirmatory PCR testing on skin and blood samples will be more effective (EFSA 2019).
- Serological cross-reactions occur between LSD virus and sheep pox and goat pox viruses (although these are not present in Australia).
- Serological tests are of limited value for individual animals, as a result of low assay sensitivity, but may provide some information at the herd level.
  - Antibodies developed remain detectable for at least 3–6 months post-infection; further studies to ascertain long-term antibody persistence have not been done to date. This will be an important consideration for proof-of-freedom testing, which will need to rely on serological testing without having DIVA (differentiating infected from vaccinated animals) capability.
- The survey design should anticipate the occurrence of false positive reactions (as no diagnostic tests have perfect specificity), although specificity is generally very high in the assays proposed for this purpose, so the number of false positives is expected to be small. Appropriate follow-up procedures will be needed, including additional sampling from the animal or herd.
- If vaccination is used as part of the disease response, the use of laboratory tests that allow DIVA will be important.
  - There is no serological DIVA capability for LSD virus. DIVA is achieved through duplex PCR assays that detect vaccine strains vs wild type; however, these tests are proving ineffectual against the new recombinant LSD virus strains.

7.1.3 Surveillance on suspect premises

Surveillance on suspect premises (SPs) is a priority and should occur as soon as possible after suspicious signs are recognised or links to known IPs are identified. Where the number of these premises is large (compared with available resources), prioritisation of surveillance should be risk based, taking into consideration the likelihood that infection may be present and the impact on the response if infection were present on the premises.

Laboratory investigation is required to confirm the status of the suspect animals. Sampling should target cattle with clinical signs, and samples should be submitted for PCR testing with or without virus isolation.

If the laboratory results are positive, the premises will be reclassified as an IP.

If the initial laboratory results are negative, additional testing to establish an alternative diagnosis may be considered. If there is no alternative diagnosis, further actions will be based on risk assessment, taking into consideration the likelihood that the negative result is a true reflection of the status of the premises – for example, by considering the number of animals affected, the number of samples taken, the level of clinical suspicion, the implications for disease control if the result is a false negative result, the duration of clinical disease on the premises and the expected incubation period. Additional testing after a period may be warranted before the property is assessed negative and subsequently reclassified.

7.1.4 Surveillance on trace premises

Surveillance on trace premises (TPs) is a priority and should occur as soon as possible after links to known IPs are identified. Where the number of these premises is large (compared with available resources), prioritisation of surveillance should be risk based, taking into consideration the likelihood that infection may be present and the impact on the response if infection were present on the premises.

Surveillance on TPs should include clinical inspection of livestock by surveillance teams. Ideally, every mob of cattle or buffalo will be inspected and numbers accounted for. If the number of cattle or buffalo on a premises is large, a statistically appropriate sample of animals on these premises must be examined, targeting those at higher risk of infection (eg those with known links to IPs and those in contact with these cattle). Because the expected disease prevalence remains low for some time after introduction into a naive population, for active surveillance to be effective, a large number of herds would need to be sampled at high frequency to allow early detection and prevent further spread of the disease (EFSA et al 2018).

Laboratory samples (EDTA blood in the absence of skin lesions) for PCR testing should be taken from higher-risk cattle at day 0. If the laboratory results are positive, the premises will be reclassified as an IP.

If the initial laboratory results are negative, stock should be monitored for development of clinical signs (see 'Surveillance on at-risk premises and premises of relevance') and higher-risk cattle retested at day 28.

If the laboratory results from day 28 testing are positive, the premises will be reclassified as an IP.

If the laboratory results are negative from testing samples at days 0 and 28, and there have been no clinical signs of LSD, the premises may be assessed as negative and subsequently reclassified.

7.1.5 Surveillance on dangerous contact premises

Cattle on DCPs will be subject to stamping out based on risk assessment. If there is a delay in stamping out (eg due to resource availability), clinical surveillance should be undertaken (see 'Surveillance on at-risk premises and premises of relevance'). Development of clinical signs and confirmation of infection on these premises may alter their prioritisation for destruction, disposal and decontamination activities.

7.1.6 Surveillance on at-risk premises and premises of relevance

On other properties at risk (at-risk premises (ARPs) and premises of relevance (PORs)), clinical surveillance should be undertaken to facilitate early reporting of suspected infection. The characteristic clinical signs of LSD mean that producers and stock managers can conduct clinical surveillance for these premises. Producers and stock managers should be provided with clear information on signs of LSD. They should be advised to inspect all groups of animals on the property – on declaration of the outbreak and regularly thereafter. Inspection would ideally occur twice weekly, but the frequency will be based on risk assessment, taking into consideration expected vector dispersal (including the potential for long-distance dispersal events), production systems and resource availability. Producers and stock managers should be given a standard reporting form to capture all relevant information and should be advised of triggers for reporting suspicion to the local control centre. Surveillance activities and resource allocation are a jurisdictional decision.

This surveillance should be maintained until the declared area in which the premises is located is resolved. Periodic field visits by surveillance teams to clinically inspect stock should be considered, subject to resource availability and risk assessment.

Where required, laboratory samples may be taken to support such investigations.

7.1.7 Restocking of infected premises, dangerous contact premises and vaccinated at-risk premises

Following destruction, disposal and decontamination on IPs, DCPs and vaccinated ARPs, the waiting period before restocking will be long. Decisions on the length of this period will take into consideration season, climatic conditions and the infection status of the area. A minimum waiting period of 6 months is recommended, but this may be substantially extended in wet or cooler conditions, or if infection is still present or suspected in the area.

7.2 Proof of freedom

Providing confidence that LSD virus is no longer circulating in Australia will be important to satisfy trading partners and regain access to international markets, and to underpin import controls to prevent reintroduction of the virus.

Although Chapter 11.9 of the World Organisation for Animal Health (WOAH) Terrestrial Code provides guidelines for recovering LSD-free status, acceptance of LSD-free status following an outbreak will have to be negotiated with individual trading partners and may take considerably longer than the minimum periods prescribed in the Terrestrial Code.

To support proof of freedom, a comprehensive surveillance program will be required to provide confidence that there are no seropositive animals remaining in the Australian herd and that there is no longer any virus circulation. As the persistence of antibodies post-infection and post-vaccination is not well understood, culling of vaccinated animals is likely to be required to avoid a prolonged proof-of-freedom phase; identification of vaccinated animals is therefore critically important. This program will build on the surveillance, tracing and diagnostic testing done during the control phase. It will include clinical, serological, molecular and virological surveillance in cattle and buffalo, and surveillance in relevant vector populations. The surveillance program will be designed to take into consideration the characteristics of the outbreak, and the general and specific considerations for surveillance for LSD outlined in Section 7.1.

Appendix 1

LUMPY SKIN DISEASE FACT SHEET

Disease and cause

Lumpy skin disease (LSD) is an acute, highly infectious disease of cattle.

The disease is caused by a virus of the family *Poxviridae* that is similar to the viruses that cause sheep pox and goat pox. The virus is mostly transmitted by biting insects.

Species affected

LSD affects ruminants, primarily cattle, although a few cases have been seen in water buffalo.

LSD is not a zoonotic disease (ie it does not affect humans).

Distribution

The disease has never been recorded in Australia.

LSD is generally considered endemic in sub-Saharan Africa, parts of the Middle East and Turkey. Since 2015, it has spread to the Balkan countries, the Caucasus and the Russian Federation.

Since 2019, outbreaks have been reported in south and east Asia, including Bangladesh, India and China. More recently, outbreaks have been reported in a territory of Taiwan and in Nepal, Indonesia and Singapore (possibly from the movement of flies or mosquitoes from neighbouring countries).

In 2022, the disease was reported in northern Indonesia.

Potential pathways for introduction into Australia

LSD may be spread by the movement of infected animals. However, it is unlikely that the disease will enter Australia through importation of live cattle or their germplasm, as cattle and genetic material are not imported from LSD-endemic countries.

The most likely route for the introduction of LSD into Australia is following establishment of the disease in neighbouring countries to the north, with the virus then carried by vectors into northern Australia.

Currently, the potential for introduction of LSD via insects entering Australia from countries in the region is high – especially since the disease has been detected in Indonesia. There is an increased risk of infected insects translocating across the seas north of Australia, or entering through international ports.

Key signs

Firm, raised nodules up to 50 mm in diameter develop on the skin within 1–2 days, especially around the head, neck, genitals and limbs. The centres of the nodules die, after which the resultant scabs ('sitfasts') may fall out, leaving large, ulcerous holes that are subject to secondary bacterial infections.

Nodules also develop in the nose, throat and gut. Oedema of the limbs, brisket and genitals also occurs.

Susceptible cattle of all ages can develop serious clinical disease if infected with LSD virus. Therefore, introduction of LSD into Australia could result in high mortalities and rapid spread of the disease.

Spread

LSD virus is present in eye, nose and mouth secretions, and in the semen, milk and blood of infected animals. Under Australian conditions, mechanical transmission of the virus by biting insects may be important. Non-biting insects have also been implicated in the transfer of infected body fluids.

Many different types of biting insects may be involved in transmission, but particularly mosquitoes and flies. Insect vectors on ships and aircraft may spread the disease, and the virus can be readily transported on clothing and equipment.

Spread by direct contact between cattle does not occur easily, unless animals share a water trough.

Persistence of the virus

LSD virus is very resistant to inactivation in the environment. It has been isolated from shed skin tissue up to 4 months after infection, and may be found in blood for 16–28 days, saliva and nasal discharges for up to 18 days, and semen for 42 days.

Impacts for Australia

LSD is one of the biggest biosecurity threats to Australia's cattle (and buffalo) industries; the effect on products would be significant. Trading partners would be expected to introduce emergency measures until an outbreak situation became stable, significantly disrupting exports of meat, dairy and other bovine-derived animal products. The impacts may include closure of markets, increased testing requirements, increased requirements for pre-export quarantine, vaccination requirements, and reductions in price premiums for Australian commodities.

Appendix 2

PERMIT CONDITIONS

1	No evidence of clinical disease in cattle or buffalo on the premises on the day of movement or in the previous 28 days.
2	Physical identification of animals (ie National Livestock Identification System – NLIS), with appropriate accompanying movement documentation (ie National Vendor Declaration – NVD, waybill).
3	Livestock, meat/meat products, carcass or milk transport vehicles and associated equipment are cleaned and treated with insecticide before transport to prevent adult competent vectors travelling.
4	Animals/carcases/carcasses are treated before transport to control vectors.
5	Agreed transport route and destination that includes only pre-approved stops (no spelling or rest stops).
6	The permit accompanies the livestock or vehicle during movement, and the person responsible retains a copy of the permit, consistent with the legal requirements of the jurisdiction.
7	Animals are not permitted to move again for 28 days (ie they must remain resident at the destination for a minimum of 28 days).
9	For animals originating in the restricted area (RA), movements to slaughter in the control area (CA) are allowed only if there is no suitable abattoir within the RA.
10	No evidence of clinical disease in animals being moved.
11	Animals are treated to control vectors, and withholding period or export slaughter interval is completed before slaughter.
12	Movement directly to abattoir (either a dangerous contact processing facility (DCPF) or an approved processing facility (APF)) with no stopping en route.
13	Appropriate biosecurity at the DCPF or APF, including quality assurance systems; record keeping; compliance with traceability requirements; controlled entry of people, equipment and vehicles; pest and vector control, addressing transmission pathways for LSD virus; and training to recognise LSD and report suspicion or confirmation of disease.
14	Onward movement of animals is not permitted.
15	Animals are slaughtered within 24 hours of arrival at the abattoir (DCPF or APF).
16	Only if the RA contains the only appropriate abattoir.
17	Animals are slaughtered within 48 hours.
18	Animals were born on the property or resident on the property for the consecutive 28 days immediately before movement.
19	Any animals that develop any clinical signs following movement are immediately reported to a government veterinary officer.
21	Heat treatment/pasteurisation (72 °C for 15 seconds) or approved disposal process for the commodity or product to inactivate the virus.

22	Milk is not for bovine consumption.
23	The semen is collected a minimum of 56 days[20] before identification of the index case, and a risk assessment is conducted.
24	Carcases/carcasses are protected from contact with vectors (eg treated for vectors; disposed of within hours, such as by burial).
25	Carcases/carcasses for further processing are treated to inactivate virus.
26	Consignment is processed in a single processing run.
27	Facility is cleaned, decontaminated and disinsected following processing of the consignment.
28	Milk products remain contained in transport vehicle.
29	Frozen semen and embryos are delivered to predetermined low-risk location, such as the edge of the property.
30	The valuation of animals on a premises is the valuation at the time of first declaration of premises status, and is not increased with subsequent improvements (eg insemination or implantation of embryo).
31	No further stops en route before arrival at the approved destination.

[20] The appropriateness of the 56-day period will need to be considered based on epidemiological considerations (eg site of collection, whether the site is outside the declared areas).

Appendix 3

VACCINATION

Currently, both homologous vaccines (live, attenuated lumpy skin disease (LSD) virus) and heterologous vaccines (live, attenuated sheep pox virus or goat pox virus) are available for LSD. The homologous vaccines provide better protection against LSD virus than the heterologous types (Tuppurainen et al 2021). More information on vaccination can be found in Section 4.2.8.

Several live, attenuated homologous vaccines against LSD virus are available, containing a Neethling LSD virus strain (eg Lumpivax™ – Kenyan Veterinary Vaccines Production Institute; Herbivac® LS – Deltamune, South Africa; lumpy skin disease vaccine – OBP, South Africa) or the SIS Neethling-type LSD virus strain (eg Lumpyvax® – MSD Animal Health, South Africa; Bovivax LSD – MCI Sante Animale, Morocco). These vaccines are generally administered annually.

The degree of attenuation of these live vaccines requires consideration:

- Side effects from the vaccine have been reported, including nodular skin disease, fever, viraemia and death, as well as a significant reduction in milk production (Ben-Gera et al 2015, ESFA 2017, Bedeković et al 2018, Katsoulos et al 2018).
- Vaccine viral particles have been detected in milk, skin nodules, blood and nasal swabs, and virus has been isolated on cell culture up to 21 days post-vaccination (Bedeković et al 2018).

Heterologous vaccines are not recommended for use in a country free from sheep pox and goat pox for the following reasons:

- Efficacy is variable, and recent evidence shows that they confer only partial immunity to LSD virus (Ayelet et al 2013, Tageldin et al 2014, Tuppurainen et al 2014, Gari et al 2015, Abutarbush et al 2016). However, goat pox vaccines are likely to afford better protection against LSD virus than sheep pox vaccines (Gari et al 2015, Zhugunissov et al 2020).
- The Kenyan sheep pox and goat pox strain vaccines (KSGP 0-240 and O-180) have recently been found to be LSD virus strains (ie these vaccines are homologous), and therefore their use is not recommended until trials in cattle are undertaken to determine true attenuation (Tulman et al 2002, Lamien et al 2011b, Tuppurainen et al 2014).
- There is a risk of clinical disease in vaccinated cattle due to low-level attenuation. The attenuation and quality of the available live sheep pox and goat pox strain vaccines may be associated with a risk of reversion, which could introduce sheep pox or goat pox into Australia during the response to LSD. This has not historically been an issue because countries with LSD have also had sheep pox and goat pox; however, it is a strong consideration for countries free from sheep pox and goat pox.

An inactivated vaccine has recently been developed. Under experimental conditions, it provides good protection, but requires multiple doses and 6-monthly boosters. Inactivated virus vaccines would be safer than live, attenuated vaccines in terms of negating the risk of reversion of vaccine virus in naive populations. However, there are potential challenges with increased time and cost for a program – multiple doses and booster doses may be required to produce sufficient immunity (Tuppurainen et al 2021).

DIVA-capable (differentiating infected from vaccinated animals) vaccines are not commercially available but are in development (Tuppurainen & Oura 2012, De Vleeschauwer et al 2017, Hamdi et al 2020). Likewise, no specific DIVA test is available.

Appendix 4

CONTROL OVERSEAS

Since 2015, lumpy skin disease (LSD) has spread throughout the Balkans (Europe). The application of stamping out and then standard ring vaccination strategies did not appear to halt the progression of the disease. Initial recommendations from the European Food Safety Authority (EFSA) in 2015 considered the 'rapid detection and prompt culling of infected herds' as effective measures in limiting spread and impact. Adjunct measures included a protection zone of 3 km, a surveillance zone of 10 km and a restricted zone of 20 km (minimum); if vaccination was required, it should be used in the restricted zone (20 km). However, LSD propagated through Greece and into Bulgaria.

The 2016 EFSA recommendations changed to pre-emptive regional vaccination against LSD, to minimise the number of outbreaks. Vaccinating entire regions and countries well in advance of disease incursion brought the overall situation under control. This assertion is based on the distribution of outbreaks in the Balkans with respect to the level of vaccination coverage. In regions with sufficient pre-emptive vaccination coverage (eg northern Bulgaria, northern Serbia, Montenegro), the disease slowed, and progression halted. In the west and southwest Balkans, where vaccination coverage was insufficient and not far enough ahead of the disease, LSD outbreaks continued to occur, including among vaccinated herds.

EFSA produced a time-lapse video in 2018 demonstrating the progression of outbreaks through the Balkans with respect to vaccination coverage (EFSA 2017).

Other challenges encountered in the European response include:

- vaccine failure (eg outbreaks in herds vaccinated only a week or two before)
- significant geographical jumps of LSD (eg initial outbreaks in Greece made jumps of 80–100 km; early cases in Bulgaria were 80 km or more from the border with Turkey and Greece); it is not known whether these were due to movements of vectors, live animals or commodities
- the presence of many small, unconsolidated or backyard cattle herds in association with extensive or hilly production areas; for example, 70% of the outbreaks in Bulgaria were on farms with less than 10 cattle.

Animals may miss out on vaccination or routine clinical observation as a result of the remoteness and/or inaccessibility of their location, difficulties in mustering and/or lack of infrastructure.

LSD was first noted in Turkey in 2013. Controls included heterologous vaccination in response to outbreaks. In 2014, Turkey observed that transmission of LSD virus was faster than its vaccination program and opted to expand vaccination to any areas neighbouring outbreak regions. This was expanded in 2015 to include all provinces in the country. Animal movement controls have been progressively strengthened over time to deal with unregulated movements; it was recognised that asymptomatic animals (vaccinated or unvaccinated) have been linked to spread. LSD has affected most of Turkey, which can be considered endemic for the disease at present; controls are ongoing.

Greece, in response to outbreaks in Turkey close to the Greek border, set up an enhanced safeguard zone 10 km from the border. In this zone, enhanced clinical surveillance was performed by veterinarians, and authorisation was required to move cattle. When the first outbreaks began at the end of 2015, Greek authorities were limited to stamping out because pre-emptive vaccination and importation of vaccine were not legally permitted. With the eventual importation of vaccine, a traditional ring vaccination and surveillance method was initially applied to regional units where disease had been detected. However, in 2016, with ongoing spread of disease, the decision was made to apply blanket, preventive vaccination to the entire mainland and then the Greek isles. With the

exception of the southwest region of Greece, by 2018, most of the mainland had suffered outbreaks, including sporadic cases in vaccinated populations (usually linked to naive animals but demonstrating continued viral circulation).

The Bulgarian response to LSD in 2016 involved total stamping out, movement controls, vector controls and vaccination of the entire country. Vaccination was initially conducted using a 20 km ring strategy, but the competent authority opted to expand this to blanket vaccination on observing the ongoing progression of LSD throughout the Balkans. Vaccination commenced in naive regions well in advance (~100 km) of outbreaks in neighbouring regions, with the result that LSD propagation was limited or not detected in these regions.

The former Yugoslav Republic of Macedonia (FYROM) was affected by LSD in April 2016. Stamping out was initially used to attempt to control the disease, but the strategy soon shifted to vaccination of infected regions and finally blanket vaccination of the entire country. However, although the number of outbreaks decreased significantly in response to vaccination of 100% of the national herd, outbreaks were recorded across the entire country between April 2016 and December 2016 (the area of the FYROM is approximately 100 km by 120 km). A significant number of outbreaks were noted in animals post-vaccination. The FYROM concluded that an incubation period of 28 days combined with a 28-day[21] period post-vaccination for immunity to peak should be used for planning purposes. Outbreaks were noted in 2017 in vaccinated animals, and the FYROM concluded that LSD virus was still circulating in the country.

Preventive vaccination was employed by Croatia (2016) in response to the progression of LSD through the Balkans. Annual vaccination of susceptible animals is conducted. Ongoing vaccination is performed for risk animals (eg newborn calves from unvaccinated dams, unvaccinated animals imported into Croatia). Surveillance for viral presence is performed using quantitative PCR. Surveillance is complicated by the lack of a DIVA-capable (differentiating infected from vaccinated animals) vaccine, in addition to vaccine virus shedding in various cattle secretions (Bedeković et al 2018). Croatia did not report any outbreaks in 2016 or 2017.

A strategy for return to LSD country freedom in the Balkans has not commenced but is expected to be challenging, given the evidence of viral circulation in vaccinated populations.

Efforts to control LSD in Asia via vaccination campaigns are ongoing.

Israel has suffered several outbreaks during the past few decades and has responded differently each time. The 1989 outbreak was reportedly eradicated by culling all cows in the region and vaccinating with a heterologous vaccine within 10 km of the outbreak. However, the 2006 and 2007 outbreaks led to ongoing vaccination and other measures in risk regions to prevent recrudescence. In 2012, another outbreak occurred and spread across the northern half of the country; it was not controlled until August 2013. Use of both heterologous and homologous vaccines was studied during this outbreak; one study demonstrated that the homologous (Neethling) vaccine was significantly more effective. The outbreak was eventually controlled (without culling) by vaccination of approximately 80% of the country's cattle. Relevant points not already covered include the following:

- Transport of infected animals caused disease spread (100 km).
- Transfer of diseased carcases seems to have caused disease spread (40 km).
- Some outbreaks may have been caused by long-range dispersal of infected vectors from other countries (eg Klausner et al 2017).

[21] The exact period for peak immunity is still debated, some authors using 21 days or other values; it will depend on the vaccine used, among other considerations.

The approach currently favoured by Israel's competent authority is modified stamping out in combination with homologous vaccine coverage, as allowed by available resources. This is not sufficient if using a heterologous vaccine.

Vector controls (eg dipping, repellent spray) have been applied at a local herd level as adjunct measures. Larger-scale vector control (eg aerial spraying) has not typically been employed by countries. Throughout overseas responses, a link has been noted between climatic conditions favourable to vector propagation and outbreaks or renewed spread of LSD. Favourable conditions include proximity of holdings to rivers and water courses (FAO 2017). Import restrictions on live bovines and certain bovine commodities have formed a part of control responses for both infected and naive countries.

This analysis is not comprehensive. Further information and case reports are available from the Balkan countries, including Albania, Montenegro, Serbia and Kosovo (FAO 2017). Several overarching lessons can be drawn:

- Control of LSD invariably involves vaccination, and movement restriction on live animals and commodities (including infected carcases).
- Delays in vaccine procurement and administration have contributed to significant disease spread through countries.
- Movement restrictions should apply even to vaccinated or asymptomatic animals from transmission risk zones.
- Vaccination needs to be performed aggressively, pre-emptively and well in advance of disease progression to be effective in preventing spread into new regions. Reactive, local-zone ring vaccination strategies have repeatedly failed. Vaccination coverage should involve every susceptible herd in a risk region (because efficacy of individual vaccinations may vary from 60% to 90%). Bulgaria assessed the coverage required as a minimum of 85%. Turkey assessed the required coverage as 80–90%. EFSA in 2016 found that, with 95% of farms vaccinated, 75% of the vaccinated animals are effectively protected. Live, attenuated, homologous vaccines are the most effective for disease control.
- One of the most commonly reported reasons for vaccine failure is insufficient time between administration of the vaccine and natural challenge by the virus.
- Continuous, or somewhat contiguous, propagation of outbreaks is expected until the disease encounters a barrier of vaccinated animals (or temporary somnolence due to climatic conditions such as winter that are generally not conducive to vector spread).
- Larger leaps of disease may occur. They may be due to movement of infected animals, long-range vector dispersal and commodity movements.
- Viral circulation may be ongoing in vaccinated populations; naive animals within large, vaccinated units have been subject to infection.
- A return to country freedom may not be possible in short timeframes.
- During the 2019 Israel outbreak, bluetongue virus contamination in a vaccine batch delayed the vaccination program for a number of days (EFSA 2020). Contamination of a live, attenuated vaccine with other viruses, such as bovine viral diarrhoea virus, is a considerable risk that may reflect issues with the quality and control of production inputs and the virus attenuation process for this type of vaccine. Reversion of attenuated vaccines to virulence and potential recombination with field strains are noted risks (Biswas et al 2020, Lamien 2020, Sprygin et al 2020).

Appendix 5

FLOWCHART OF AN EMERGENCY ANIMAL DISEASE RESPONSE

An overview of Australia's emergency animal disease (EAD) response structures and governance is provided in the ***Control centres management manual*** and summarised below to highlight the role of AUSVETPLAN.

The chief veterinary officer (CVO) in the state or territory in which the incident occurs is responsible for instituting animal disease control action within that state or territory. The strategies to control the disease, including the budget for the proposed response actions, are documented in an Emergency Animal Disease Response Plan (EADRP). Where the EAD is suspected or confirmed to be a zoonosis, the EADRP is developed in collaboration with the chief health officer (CHO) of the affected state or territory.

For a response to be cost shared under the Emergency Animal Disease Response Agreement (EADRA), EADRPs must be consistent with, and guided by, any relevant AUSVETPLAN manuals. However, the Consultative Committee on Emergency Animal Diseases (CCEAD) can, if it thinks reasonable, recommend to the National Management Group (NMG) an EADRP even if part of the response plan deviates from AUSVETPLAN (eg due to new knowledge). For responses that are not cost shared under the EADRA, the development of response plans consistent with AUSVETPLAN is voluntary and is usual practice. AUSVETPLAN therefore serves as the authoritative reference on policies and guidelines for the management of EADs in Australia.

The CVO is responsible for recommending the EADRP to the CCEAD. Unaffected jurisdictions may also need to develop response plans to address jurisdictional activities that may be eligible for cost sharing.

The CCEAD provides technical review of the EADRP and may recommend it to the NMG convened for the incident. The NMG decides on whether cost sharing will be invoked (following advice from the CCEAD) and whether to approve the EADRP.

CVOs and, where relevant, CHOs implement disease control measures as agreed in the EADRP and in accordance with relevant legislation. They make ongoing decisions on follow-up disease control measures – including termination of the response – in consultation with the CCEAD and, where applicable, the NMG, based on epidemiological information about the outbreak.

It is also important to note that the overall response policy contained in the various AUSVETPLAN manuals is used in informing responses to new and emerging diseases.

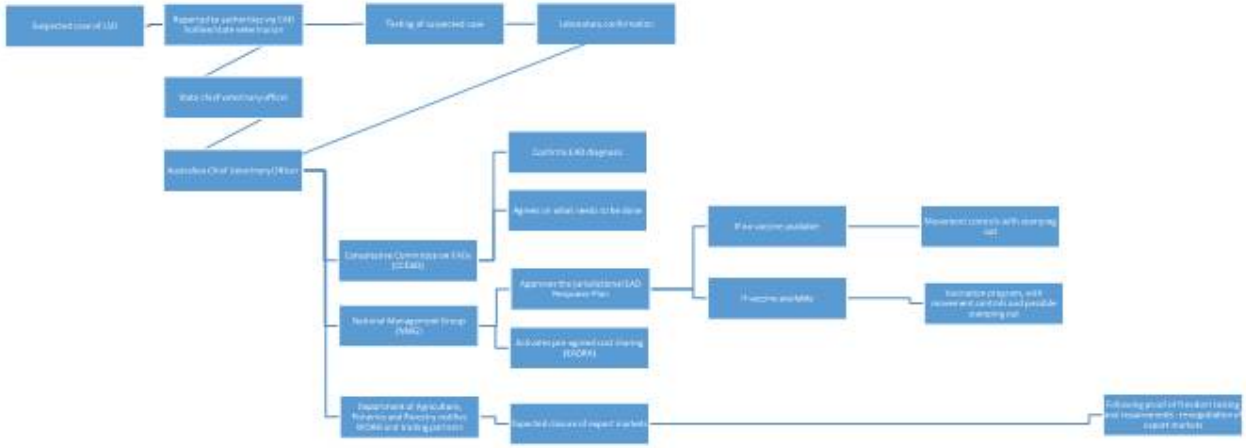

Figure A5.1 Summary of steps in the reporting of an emergency animal disease

Glossary

Disease-specific terms

Abomasum	Fourth stomach of ruminants; also called the 'true' or 'rennet' stomach or 'reed'. Leads into the small intestine.
Hyperaemia	An increase in the amount of blood in a tissue or organ due to dilation of the supplying arteries or constriction of the veins.
Immunodiffusion test	A serological test to identify antigens or antibodies by precipitation of antibody–antigen complexes after diffusion through agar gel.
Indirect immunofluorescence	A technique in which the presence of antigen or antibody in a sample can be detected by binding of a specific antibody bound to a fluorescent marker molecule, which is visible under a fluorescence microscope.
Mucopurulent	Consisting of mucus and pus.
Regional blanket vaccination	Vaccination applied to large numbers of animals within regions where disease spread is suspected to be high.
Serosurveillance	Surveillance of an animal population by testing serum samples for the presence of antibodies to disease agents.
Serum neutralisation test	A serological test to detect and measure the presence of antibody in a sample. Antibody in serum is serially diluted to detect the highest dilution that neutralises a standard amount of antigen. The neutralising antibody titre is given as the reciprocal of this dilution.
Zebu (cattle)	Bovine animals (*Bos indicus*) with a characteristic large hump over the shoulders. Widely distributed in India, China, eastern Africa, etc. and used for cross-breeding in Australia.

Standard AUSVETPLAN terms

Term	Definition
Animal byproducts	Products of animal origin that are not for consumption but are destined for industrial use (eg hides and skins, fur, wool, hair, feathers, hoofs, bones, fertiliser).
Animal Health Committee	A committee whose members are the chief veterinary officers of the Commonwealth, states and territories, along with representatives from the CSIRO Australian Centre for Disease Preparedness (CSIRO-ACDP) and the Australian Government Department of Agriculture, Fisheries and Forestry. There are also observers from Animal Health Australia, Wildlife Health Australia, and the New Zealand Ministry for Primary Industries. The committee provides advice to the National Biosecurity Committee on animal health matters, focusing on technical issues and regulatory policy. *See also* National Biosecurity Committee

Term	Definition
Animal products	Meat, meat products and other products of animal origin (eg eggs, milk) for human consumption or for use in animal feedstuff.
Approved disposal site	A premises that has zero susceptible livestock and has been approved as a disposal site for animal carcasses, or potentially contaminated animal products, wastes or things.
Approved processing facility	An abattoir, knackery, milk processing plant or other such facility that maintains increased biosecurity standards. Such a facility could have animals or animal products introduced from lower-risk premises under a permit for processing to an approved standard.
At-risk premises	A premises in a restricted area that contains a live susceptible animal(s) but is not considered at the time of classification to be an infected premises, dangerous contact premises, dangerous contact processing facility, suspect premises or trace premises.
Australian Chief Veterinary Officer	The nominated senior veterinarian in the Australian Government Department of Agriculture, Fisheries and Forestry who manages international animal health commitments and the Australian Government's response to an animal disease outbreak. *See also* Chief veterinary officer
AUSVETPLAN	*Aus*tralian *Vet*erinary Emergency *Plan*. Nationally agreed resources that guide decision making in the response to emergency animal diseases (EADs). It outlines Australia's preferred approach to responding to EADs of national significance, and supports efficient, effective and coherent responses to these diseases.
Carcase	The body of an animal slaughtered for food.
Carcass	The body of an animal that died in the field.
Chief veterinary officer (CVO)	The senior veterinarian of the animal health authority in each jurisdiction (national, state or territory) who has responsibility for animal disease control in that jurisdiction. *See also* Australian Chief Veterinary Officer
Compartmentalisation	The process of defining, implementing and maintaining one or more disease-free establishments under a common biosecurity management system in accordance with WOAH guidelines, based on applied biosecurity measures and surveillance, to facilitate disease control and/or trade.
Compensation	The sum of money paid by government to an owner for livestock or property that are destroyed for the purpose of eradication or prevention of the spread of an emergency animal disease, and livestock that have died of the emergency animal disease. *See also* Cost-sharing arrangements, Emergency Animal Disease Response Agreement
Consultative Committee on Emergency Animal Diseases (CCEAD)	The key technical coordinating body for animal health emergencies. Members are state and territory chief veterinary officers, representatives of CSIRO-ACDP and the relevant industries, and the Australian Chief Veterinary Officer as chair.
Control area (CA)	A legally declared area where the disease controls, including surveillance and movement controls, applied are of lesser intensity

Term	Definition
	than those in a restricted area (the limits of a control area and the conditions applying to it can be varied during an incident according to need).
Cost-sharing arrangements	Arrangements agreed between governments (national and state/territory) and livestock industries for sharing the costs of emergency animal disease responses. *See also* Compensation, Emergency Animal Disease Response Agreement
Dangerous contact animal	A susceptible animal that has been designated as being exposed to other infected animals or potentially infectious products following tracing and epidemiological investigation.
Dangerous contact premises (DCP)	A premises, apart from an abattoir, knackery or milk processing plant (or other such facility) that, after investigation and based on a risk assessment, is considered to contain a susceptible animal(s) not showing clinical signs, but considered highly likely to contain an infected animal(s) and/or contaminated animal products, wastes or things that present an unacceptable risk to the response if the risk is not addressed, and that therefore requires action to address the risk.
Dangerous contact processing facility (DCPF)	An abattoir, knackery, milk processing plant or other such facility that, based on a risk assessment, appears highly likely to have received infected animals, or contaminated animal products, wastes or things, and that requires action to address the risk.
Declared area	A defined tract of land that is subjected to disease control restrictions under emergency animal disease legislation. There are two types of declared areas: restricted area and control area.
Decontamination	Includes all stages of cleaning and disinfection.
Depopulation	The removal of a host population from a particular area to control or prevent the spread of disease.
Destroy (animals)	To kill animals humanely.
Disease agent	A general term for a transmissible organism or other factor that causes an infectious disease.
Disease Watch Hotline	24-hour freecall service for reporting suspected incidences of exotic diseases – 1800 675 888.
Disinfectant	A chemical used to destroy disease agents outside a living animal.
Disinfection	The application, after thorough cleansing, of procedures intended to destroy the infectious or parasitic agents of animal diseases, including zoonoses; applies to premises, vehicles and different objects that may have been directly or indirectly contaminated.
Disinsectation	The destruction of insect pests, usually with a chemical agent.
Disposal	Sanitary removal of animal carcasses, animal products, materials and wastes by burial, burning or some other process so as to prevent the spread of disease.
Emergency animal disease	A disease that is (a) exotic to Australia or (b) a variant of an endemic disease or (c) a serious infectious disease of unknown or uncertain

Term	Definition
	cause or (d) a severe outbreak of a known endemic disease, and that is considered to be of national significance with serious social or trade implications. *See also* Endemic animal disease, Exotic animal disease
Emergency Animal Disease Response Agreement	Agreement between the Australian and state/territory governments and livestock industries on the management of emergency animal disease responses. Provisions include participatory decision making, risk management, cost sharing, the use of appropriately trained personnel and existing standards such as AUSVETPLAN. *See also* Compensation, Cost-sharing arrangements
Endemic animal disease	A disease affecting animals (which may include humans) that is known to occur in Australia. *See also* Emergency animal disease, Exotic animal disease
Enterprise	*See* Risk enterprise
Enzyme-linked immunosorbent assay (ELISA)	A serological test designed to detect and measure the presence of antibody or antigen in a sample. The test uses an enzyme reaction with a substrate to produce a colour change when antigen–antibody binding occurs.
Epidemiological investigation	An investigation to identify and qualify the risk factors associated with the disease. *See also* Veterinary investigation
Epidemiology	The study of disease in populations and of factors that determine its occurrence.
Exotic animal disease	A disease affecting animals (which may include humans) that does not normally occur in Australia. *See also* Emergency animal disease, Endemic animal disease
Exotic fauna/feral animals	*See* Wild animals
Fomites	Inanimate objects (eg boots, clothing, equipment, instruments, vehicles, crates, packaging) that can carry an infectious disease agent and may spread the disease through mechanical transmission.
General permit	A legal document that describes the requirements for movement of an animal (or group of animals), commodity or thing, for which permission may be granted without the need for direct interaction between the person moving the animal(s), commodity or thing and a government veterinarian or inspector. The permit may be completed via a webpage or in an approved place (such as a government office or commercial premises). A printed version of the permit must accompany the movement. The permit may impose preconditions and/or restrictions on movements. *See also* Special permit
In-contact animals	Animals that have had close contact with infected animals, such as noninfected animals in the same group as infected animals.
Incubation period	The period that elapses between the introduction of a pathogen into an animal and the first clinical signs of the disease.

Term	Definition
Index case	The first case of the disease to be diagnosed in a disease outbreak. *See also* Index property
Index property	The property on which the index case is found. *See also* Index case
Infected premises (IP)	A defined area (which may be all or part of a property) on which animals meeting the case definition are or were present, or the causative agent of the emergency animal disease is present, or there is a reasonable suspicion that either is present, and that the relevant chief veterinary officer or their delegate has declared to be an infected premises.
Local control centre (LCC)	An emergency operations centre responsible for the command and control of field operations in a defined area.
Modified stamping out	A stamping-out policy that is modified – based on risk assessment – to culling only a selected group of animals instead of all susceptible animals that are either infected or exposed to the agent of disease. This modified strategy may be implemented when the destruction of all susceptible animals is not financially or practically feasible. The term 'modified' is used when the stamping-out measures are not implemented in full.
Monitoring	Routine collection of data for assessing the health status of a population or the level of contamination of a site for remediation purposes. *See also* Surveillance
Movement control	Restrictions placed on the movement of animals, people and other things to prevent the spread of disease.
National Biosecurity Committee (NBC)	A committee that was formally established under the Intergovernmental Agreement on Biosecurity (IGAB). The IGAB was signed on 13 January 2012, and signatories include all states and territories except Tasmania. The committee provides advice to the Agriculture Senior Officials Committee and the Agriculture Ministers' Forum on national biosecurity issues, and on the IGAB.
National Management Group (NMG)	A group established to approve (or not approve) the invoking of cost sharing under the Emergency Animal Disease Response Agreement. NMG members are the Secretary of the Australian Government Department of Agriculture, Fisheries and Forestry as chair, the chief executive officers of the state and territory government parties, and the president (or analogous officer) of each of the relevant industry parties.
Native wildlife	*See* Wild animals
Operational procedures	Detailed instructions for carrying out specific disease control activities, such as disposal, destruction, decontamination and valuation.
Outside area (OA)	The area of Australia outside the declared (control and restricted) areas.

Term	Definition
Owner	Person responsible for a premises (includes an agent of the owner, such as a manager or other controlling officer).
Polymerase chain reaction (PCR)	A method of amplifying and analysing DNA sequences that can be used to detect the presence of viral DNA or RNA.
Premises	A tract of land including its buildings, or a separate farm or facility that is maintained by a single set of services and personnel.
Premises of relevance (POR)	A premises in a control area that contains a live susceptible animal(s) but is not considered at the time of classification to be an infected premises, suspect premises, trace premises, dangerous contact premises or dangerous contact processing facility.
Prevalence	The proportion (or percentage) of animals in a particular population affected by a particular disease (or infection or positive antibody titre) at a given point in time.
Proof of freedom	Reaching a point following an outbreak and post-outbreak surveillance when freedom from the disease can be claimed with a reasonable level of statistical confidence.
Qualifiers	
– assessed negative	Assessed negative (AN) is a qualifier that may be applied to ARPs, PORs, SPs, TPs, DCPs or DCPFs. The qualifier may be applied following surveillance, epidemiological investigation, and/or laboratory assessment/diagnostic testing and indicates that the premises is assessed as negative at the time of classification.
– sentinels on site	Sentinels on site (SN) is a qualifier that may be applied to IPs and DCPs to indicate that sentinel animals are present on the premises as part of response activities (ie before it can be assessed as an RP).
– vaccinated	The vaccinated (VN) qualifier can be applied in a number of different ways. At its most basic level, it can be used to identify premises that contain susceptible animals that have been vaccinated against the EAD in question. However, depending on the legislation, objectives and processes within a jurisdiction, the VN qualifier may be used to track a range of criteria and parameters.
Quarantine	Legally enforceable requirement that prevents or minimises spread of pests and disease agents by controlling the movement of animals, persons or things.
Resolved premises (RP)	An infected premises, dangerous contact premises or dangerous contact processing facility that has completed the required control measures, and is subject to the procedures and restrictions appropriate to the area in which it is located.
Restricted area (RA)	A relatively small legally declared area around infected premises and dangerous contact premises that is subject to disease controls, including intense surveillance and movement controls.
Risk enterprise	A defined livestock or related enterprise that is potentially a major source of infection for many other premises. Includes intensive piggeries, feedlots, abattoirs, knackeries, saleyards, calf scales, milk factories, tanneries, skin sheds, game meat establishments, cold

Term	Definition
	stores, artificial insemination centres, veterinary laboratories and hospitals, road and rail freight depots, showgrounds, field days, weighbridges and garbage depots.
Sensitivity	The proportion of truly positive units that are correctly identified as positive by a test. *See also* Specificity
Sentinel animal	Animal of known health status that is monitored to detect the presence of a specific disease agent.
Seroconversion	The appearance in the blood serum of antibodies (as determined by a serology test) following vaccination or natural exposure to a disease agent.
Serosurveillance	Surveillance of an animal population by testing serum samples for the presence of antibodies to disease agents.
Serotype	A subgroup of microorganisms identified by the antigens carried (as determined by a serology test).
Serum neutralisation test	A serological test to detect and measure the presence of antibody in a sample. Antibody in serum is serially diluted to detect the highest dilution that neutralises a standard amount of antigen. The neutralising antibody titre is given as the reciprocal of this dilution.
Slaughter	The humane killing of an animal for meat for human consumption.
Special permit	A legal document that describes the requirements for movement of an animal (or group of animals), commodity or thing, for which the person moving the animal(s), commodity or thing must obtain prior written permission from the relevant government veterinarian or inspector. A printed version of the permit must accompany the movement. The permit may impose preconditions and/or restrictions on movements. *See also* General permit
Specificity	The proportion of truly negative units that are correctly identified as negative by a test. *See also* Sensitivity
Stamping out	The strategy of eliminating infection from premises through the destruction of animals in accordance with the particular AUSVETPLAN manual, and in a manner that permits appropriate disposal of carcasses and decontamination of the site.
State coordination centre (SCC)	The emergency operations centre that directs the disease control operations to be undertaken in a state or territory.
Surveillance	A systematic program of investigation designed to establish the presence, extent or absence of a disease, or of infection or contamination with the causative organism. It includes the examination of animals for clinical signs, antibodies or the causative organism.
Susceptible animals	Animals that can be infected with a particular disease.
Suspect animal	An animal that may have been exposed to an emergency disease such that its quarantine and intensive surveillance, but not pre-

Term	Definition
	emptive slaughter, is warranted. or An animal not known to have been exposed to a disease agent but showing clinical signs requiring differential diagnosis.
Suspect premises (SP)	Temporary classification of a premises that contains a susceptible animal(s) not known to have been exposed to the disease agent but showing clinical signs similar to the case definition, and that therefore requires investigation(s).
Swill	Also known as 'prohibited pig feed', means material of mammalian origin, or any substance that has come in contact with this material, but does not include: (i) Milk, milk products or milk by-products either of Australian provenance or legally imported for stockfeed use into Australia. (ii) Material containing flesh, bones, blood, offal or mammal carcases which is treated by an approved process.[1] (iii) A carcass or part of a domestic pig, born and raised on the property on which the pig or pigs that are administered the part are held, that is administered for therapeutic purposes in accordance with the written instructions of a veterinary practitioner. (iv) Material used under an individual and defined-period permit issued by a jurisdiction for the purposes of research or baiting. [1] In terms of (ii), approved processes are: 1. rendering in accordance with the 'Australian Standard for the Hygienic Rendering of Animal Products' 2. under jurisdictional permit, cooking processes subject to compliance verification that ensure that a core temperature of at least 100 °C for a minimum of 30 minutes, or equivalent, has been reached. 3. treatment of cooking oil, which has been used for cooking in Australia, in accordance with the 'National Standard for Recycling of Used Cooking Fats and Oils intended for Animal Feeds' 4. under jurisdictional permit, any other nationally agreed process approved by AHC for which an acceptable risk assessment has been undertaken and that is subject to compliance verification. The national definition is a minimum standard. Some jurisdictions have additional conditions for swill feeding that pig producers in those jurisdictions must comply with, over and above the requirements of the national definition.
Swill feeding	Also known as 'feeding prohibited pig feed', it includes: • feeding, or allowing or directing another person to feed, prohibited pig feed to a pig • allowing a pig to have access to prohibited pig feed

Term	Definition
	• the collection and storage or possession of prohibited pig feed on a premises where one or more pigs are kept • supplying to another person prohibited pig feed that the supplier knows is for feeding to any pig. This definition was endorsed by the Agriculture Ministers' Council through AGMIN OOS 04/2014.
Trace premises (TP)	Temporary classification of a premises that contains susceptible animal(s) that tracing indicates may have been exposed to the disease agent, or contains contaminated animal products, wastes or things, and that requires investigation(s).
Tracing	The process of locating animals, people or other items that may be implicated in the spread of disease, so that appropriate action can be taken.
Unknown status premises (UP)	A premises within a declared area where the current presence of susceptible animals and/or risk products, wastes or things is unknown.
Vaccination	Inoculation of individuals with a vaccine to provide active immunity.
Vaccine	A substance used to stimulate immunity against one or several disease-causing agents to provide protection or to reduce the effects of the disease. A vaccine is prepared from the causative agent of a disease, its products or a synthetic substitute, which is treated to act as an antigen without inducing the disease.
– adjuvanted	A vaccine in which one or several disease-causing agents are combined with an adjuvant (a substance that increases the immune response).
– attenuated	A vaccine prepared from infective or 'live' microbes that are less pathogenic but retain their ability to induce protective immunity.
– gene deleted	An attenuated or inactivated vaccine in which genes for non-essential surface glycoproteins have been removed by genetic engineering. This provides a useful immunological marker for the vaccine virus compared with the wild virus.
– inactivated	A vaccine prepared from a virus that has been inactivated ('killed') by chemical or physical treatment.
– recombinant	A vaccine produced from virus that has been genetically engineered to contain only selected genes, including those causing the immunogenic effect.
Vector	A living organism (frequently an arthropod) that transmits an infectious agent from one host to another. A *biological* vector is one in which the infectious agent must develop or multiply before becoming infective to a recipient host. A *mechanical* vector is one that transmits an infectious agent from one host to another but is not essential to the life cycle of the agent.

Term	Definition
Veterinary investigation	An investigation of the diagnosis, pathology and epidemiology of the disease. *See also* Epidemiological investigation
Viraemia	The presence of viruses in the blood.
Wild animals	
– native wildlife	Animals that are indigenous to Australia and may be susceptible to emergency animal diseases (eg bats, dingoes, marsupials).
– feral animals	Animals of domestic species that are not confined or under control (eg cats, horses, pigs).
– exotic fauna	Nondomestic animal species that are not indigenous to Australia (eg foxes).
WOAH Terrestrial Code	WOAH *Terrestrial animal health code*. Describes standards for safe international trade in animals and animal products. Revised annually and published on the internet at: https://www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access.
WOAH Terrestrial Manual	WOAH *Manual of diagnostic tests and vaccines for terrestrial animals*. Describes standards for laboratory diagnostic tests, and the production and control of biological products (principally vaccines). The current edition is published on the internet at: https://www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-manual-online-access.
Wool	Sheep wool.
Zero susceptible species premises (ZP)	A premises that does not contain any susceptible animals or risk products, wastes or things.
Zoning	The process of defining, implementing and maintaining a disease-free or infected area in accordance with WOAH guidelines, based on geopolitical and/or physical boundaries and surveillance, to facilitate disease control and/or trade.
Zoonosis	A disease of animals that can be transmitted to humans.

Abbreviations

Disease-specific abbreviations

Abbreviation	Full title
ADS	approved disposal site
DIVA	differentiating infected from vaccinated animals
EFSA	European Food Safety Authority
LSD	lumpy skin disease

Standard AUSVETPLAN abbreviations

Abbreviation	Full title
ACDP	Australian Centre for Disease Preparedness
AN	assessed negative
APF	approved processing facility
ARP	at-risk premises
AUSVETPLAN	Australian Veterinary Emergency Plan
CA	control area
CCEAD	Consultative Committee on Emergency Animal Diseases
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CVO	chief veterinary officer
DCP	dangerous contact premises
DCPF	dangerous contact processing facility
EAD	emergency animal disease
EADRA	Emergency Animal Disease Response Agreement
EADRP	Emergency Animal Disease Response Plan
EDTA	ethylenediaminetetraacetic acid (anticoagulant for whole blood)
ELISA	enzyme-linked immunosorbent assay
GP	general permit
IETS	International Embryo Technology Society
IP	infected premises
LCC	local control centre

Abbreviation	Full title
NASOP	nationally agreed standard operating procedure
NMG	National Management Group
OA	outside area
PCR	polymerase chain reaction
POR	premises of relevance
RA	restricted area
RP	resolved premises
SCC	state coordination centre
SP	suspect premises
SpP	special permit
TP	trace premises
UP	unknown status premises
WOAH	World Organisation for Animal Health
ZP	zero susceptible species premises

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LUMPY SKIN DISEASE STANDARD OPERATING PROCEDURES:

1. OVERVIEW OF ETIOLOGY AND ECOLOGY

FAD PReP

Foreign Animal Disease
Preparedness & Response Plan

United States
Department of
Agriculture

United States Department of Agriculture • Animal and Plant Health Inspection Service • Veterinary Services

DRAFT OCTOBER 2016

The Foreign Animal Disease Preparedness and Response Plan (FAD PReP) Standard Operating Procedures (SOPs) provide operational guidance for responding to an animal health emergency in the United States.

These draft SOPs are under ongoing review. This document was last updated in **October 2016**. Please send questions or comments to:

National Preparedness and Incident Coordination Center
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Lumpy Skin Diease (LSDV)

Etiology and Ecology Quick Summary

Disease

Lumpy skin disease, also known as Knopvelsiekte and Neethling virus.

Mortality and Morbidity

Varies with cattle breed and age. Mortality is often relatively low (1–3%) and morbidity usually only reaches 20% but can vary between 3–85%.

Susceptible Species

Cattle, zebu cattle, yaks, giraffes, impalas, and water buffalo.

Zoonotic Potential (yes/no)?

No.

Reservoir

No known wild reservoir.

Transmission

Biting insects are the main mode of transmission.

Persistence in the Environment

The virus is susceptible to sunlight and detergents containing lipid solvents. In dark environmental conditions, such as contaminated animal sheds, it can persist for many months. The virus can survive for a long time at ambient temperatures.

Animal Products and By-Products

LSDV is very resistant to inactivation, surviving in necrotic skin nodules for up to 33 days or longer, desiccated crusts for up to 35 days, and at least 18 days in air-dried hides.

1.1 Introduction

Lumpy skin disease (LSD) is an infectious viral disease that affects cattle. Clinical signs include nodules on the skin, mucous membranes, and internal organs, fever, emaciation, enlarged lymph nodes, edema of the skin, and sometimes death.[1] LSD fatalities are often low but economic impacts can be high, as decreased milk production, abortion, infertility, and decreased hide quality negatively impact owners of infected herds.

LSD is considered endemic in southern and central regions of Africa. In 1929, the first recorded outbreak occurred in Zambia.[2] LSD was initially only present south of the Sahara desert and in Madagascar until it spread to Egypt in 1988. Outbreaks have since occurred in the Middle East, particularly Israel in 1989, where eradication was eventually achieved through depopulation and vaccination.[3]

1.1.1 Goals

As a preparedness goal, the Animal and Plant Health Inspection Service (APHIS) will provide etiology and ecology summaries for LSD and update these summaries at regular intervals.

As a response goal, the Unified Command and stakeholders will have a common set of etiology and ecology definitions and descriptions, to ensure proper understanding of LSD when establishing or revising goals, objectives, strategies, and procedures.

1.2 Purpose

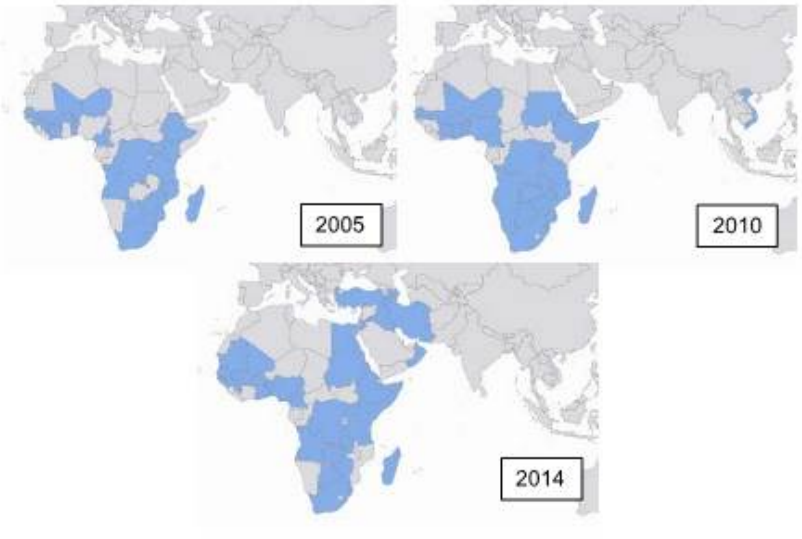
The purpose of this document is to provide responders and stakeholders with a common understanding of the disease agent.

1.3 Disease Reporting

In countries where LSD is endemic, no established systems of disease reporting, eradication, or prevention plans exist. LSD can easily go undetected and unreported due to fear of trade bans and lack of proficient veterinary staff and confirmatory laboratories. These factors promote the persistence of LSD in endemic areas.[4] As seen in Figure 1-1, LSD is endemic across wide areas of Africa, and in recent years, portions of the Middle East.

[1] World Organization for Animal Health (OIE). (2016). Lumpy Skin Disease. *Terrestrial Manual*. Retrieved from www.oie.int.
[2] Neamat-Allah, A. N. F. (2015). Immunological, Hematological, Biochemical, and Histopathological Studies on Cows Naturally Infected with Lumpy Skin Disease. *Veterinary World*, *8*(9) 1131-1136.
[3] Center for Food Security and Public Health (CFSPH), Iowa State University. (2008). Lumpy Skin Disease. *Technical Factsheet*. Retrieved from http://www.cfsph.iastate.edu/Factsheets/pdfs/lumpy_skin_disease.pdf.
[4] European Food Safety Authority (EFSA). (2015). Scientific Opinion on Lumpy Skin Disease. EFSA Panel on Animal Health and Welfare (AHAW). *EFSA Journal*, *13*(1): 3986.

Figure 1-1. Global LSD prevalence in 2005, 2010, and 2014[5]



1.4 Etiology

1.4.1 Virus Characteristics

According to the International Committee on Taxonomy of Viruses, this disease has the following characteristics:

- Family: *Poxviridae*
- Genus: *Capripox*, containing three species:
  - Lumpy skin disease virus (LSDV)
  - Goat pox virus (GTPV)
  - Sheep pox virus (SPPV)

LSD is closely related to GTPV and SPPV, which affect goats and sheep. There is ongoing research determining the genetic relationship between these three viruses; it is thought that goat

[5] OIE. (2015). Disease Timelines. Retrieved from http://www.oie.int/wahis_2/public/wahid.php/Wahidhome/Home.

pox and lumpy skin disease are more closely related. All sheep and goat pox genes are found in the LSD genome.[6,7]

1.4.2 Genus Characteristics

Capripoxviruses are double-stranded DNA viruses containing around 150 kilobase pairs and are relatively large (230–260 nm). They are brick- or oval-shaped with enveloped capsids. Strains of GTPV, SPPV, and LSDV are up to 96 percent similar.[8,9]

1.5 Ecology

1.5.1 Name

LSD is also referred to as Knopvelsiekte and Neethling virus.[10]

1.5.2 Susceptible Species

- Cattle (*Bos taurus*),
- zebu cattle (*Bos indicus*),
- yaks (*Bos grunniens*),
- giraffes,
- impalas, and
- Asian water buffalo (*Bubalus bubalis*).[11,12]

In cattle, breeds of the *Bos taurus* species (predominantly Jersey, Guernsey, and Ayrshire [Channel Island breeds]) are more disposed to clinical disease than zebu cattle and their hybrids.[13]

Other species, such as the Arabian oryx (*Oryx leucoryx*), springbok (*Antidorcas marsupialis*), blue wildebeest (*Connochaetes taurinus*), black wildebeest (*Connochaetes gnu*), eland (*Taurotragus oryx*), African buffalo (*Syncerus caffer*), kudu (*Tragelaphus strepsiceros*), two waterbuck species (*Kobus ellipsiprymnus* and *Kobus defassa*), and reedbuck (*Redunca arundinum*), have been found with LSDV antibodies, but skepticism remains as infection in

[6] Tulman, E. R., et al. (2002). The Genomes of Sheeppox and Goatpox Viruses. *Journal of Virology, 76*(12): 6054-6061.
[7] CFSPH. (2008). Lumpy Skin Disease. *Technical Factsheet.* Retrieved from http://www.cfsph.iastate.edu/Factsheets/pdfs/lumpy_skin_disease.pdf.
[8] Tulman, E. R., et al. (2002). The Genomes of Sheeppox and Goatpox Viruses. *Journal of Virology, 76*(12): 6054-6061.
[9] EFSA. (2015). Scientific Opinion on Lumpy Skin Disease. EFSA Panel on AHAW. *EFSA Journal, 13*(1): 3986.
[10] CFSPH. (2008). Lumpy Skin Disease. *Technical Factsheet.* Retrieved from http://www.cfsph.iastate.edu/Factsheets/pdfs/lumpy_skin_disease.pdf.
[11] Center for Agriculture and Biosciences International (CABI). (2015). Lumpy Skin Disease. Retrieved from http://www.cabi.org/isc/datasheet/76780.
[12] CFSPH. (2008). Lumpy Skin Disease. *Technical Factsheet.* Retrieved from http://www.cfsph.iastate.edu/Factsheets/pdfs/lumpy_skin_disease.pdf.
[13] CFSPH. (2008). Lumpy Skin Disease. *Technical Factsheet.* Retrieved from http://www.cfsph.iastate.edu/Factsheets/pdfs/lumpy_skin_disease.pdf.

these animals could have potentially come from another related pox viruses. Infection of LSD in wild animals may be hard to notice for various reasons. Severely affected wild animals would quickly become easy prey, and since LSD can have mild physical signs, it may go unnoticed.[14,15,16]

LSDV experimentally added to sheep and goat cells is able to replicate, and injecting sheep and goats with LSDV does produce LSD-like lesions in some cases. Clinical infection in sheep and goats has never occurred, however.[17,18]

1.5.3 Maintenance Hosts

Kenyan African buffalo are thought to potentially be maintenance hosts.[19]

1.5.4 Introduction and Transmission of Lumpy Skin Disease

Biting insects are the main mode of transmission. LSDV has been isolated in the mosquito genera *Aedes* and *Culex*. Flies, such as *Stomoxys calcitrans* and *Biomyia fasciata*, in South Africa, along with other insects, like ticks (*Ixodid*, *Amblyomma hebraeum*, and *Rhipicephalus appendiculatus*), may be other mechanical vectors.[20,21] Because of the nature of these vectors, outbreaks are more frequent in wet, warm weather and in low-lying areas near water sources.

Direct contact with infected animals could potentially be another source of disease transmission, although it is less likely. LSDV is found in cutaneous lesions, saliva, respiratory secretions, milk, and semen. Fomites and animal products, such as hides, are potential sources of transmission as well. Experimentally, infected food and water via saliva have resulted in disease in animals.[22]

1.5.5 Incubation Period

The incubation period for LSD is 2 to 5 weeks. In some experiments, infected animals had fevers as soon as 6 to 9 days and lesions around the inoculation site in just 4 to 20 days after exposure.[23] The World Organization for Animal Health (OIE) *Terrestrial Animal Health Code* (2016) gives the incubation period as 28 days.[24]

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[14] Carter, G. R., Wise, D. J., and Flores, E.F. (2005). *A Concise Review of Veterinary Virology*. Retrieved from http://www.ivis.org/home.asp.
[15] CFSPH. (2008). Lumpy Skin Disease. *Technical Factsheet*. Retrieved from http://www.cfsph.iastate.edu/Factsheets/pdfs/lumpy_skin_disease.pdf.
[16] EFSA. (2015). Scientific Opinion on Lumpy Skin Disease. EFSA Panel on AHAW. *EFSA Journal*, *13*(1): 3986.
[17] EFSA. (2015). Scientific Opinion on Lumpy Skin Disease. EFSA Panel on AHAW. *EFSA Journal*, *13*(1): 3986.
[18] CABI. (2015). Lumpy Skin Disease. Retrieved from http://www.cabi.org/isc/datasheet/76780.
[19] Gibbs, P. (2013). Pox Diseases: Lumpy Skin Disease. *The Merck Veterinary Manual*. Retrieved from http://www.merckvetmanual.com/mvm/index.html.
[20] Neamat-Allah, A. N. F. (2015). Immunological, Hematological, Biochemical, and Histopathological Studies on Cows Naturally Infected with Lumpy Skin Disease. *Veterinary World*, *8*(9) 1131-1136.
[21] EFSA. (2015). Scientific Opinion on Lumpy Skin Disease. EFSA Panel on AHAW. *EFSA Journal*, *13*(1): 3986.
[22] CFSPH. (2008). Lumpy Skin Disease. *Technical Factsheet*. Retrieved from http://www.cfsph.iastate.edu/Factsheets/pdfs/lumpy_skin_disease.pdf.
[23] CFSPH. (2008). Lumpy Skin Disease. *Technical Factsheet*. Retrieved from http://www.cfsph.iastate.edu/Factsheets/pdfs/lumpy_skin_disease.pdf.
[24] OIE. (2016). Chapter 11.11. Lumpy Skin Disease. *Terrestrial Animal Health Code*. Retrieved from www.oie.int.

1.5.6 Morbidity and Mortality

Mortality is often relatively low (1–3 percent), and morbidity often only reaches 20 percent but can vary between 3–85 percent. Cows that are lactating seem to be more susceptible. In enzootic areas, infections in unvaccinated cattle often occur in epidemic form every 5–6 years.[25]

1.5.7 Clinical Signs

Clinical signs can include nodules on the skin, mucous membranes, and internal organs, fever, emaciation, enlarged lymph nodes, nasal discharge, lacrimation, abortion, edema of the skin, and sometimes death. Nodules can become necrotic, which poses a risk for further infection. Only 40–50 percent of animals will develop skin lesions. Milk yield can also drop significantly and bulls many become temporarily or permanently sterile. Young calves and lactating cows usually have more severe clinical signs. Overall, lesions can vary widely from one animal to another even within the same herd. Recovery is slow and often scars are left on the hides of animals.[26,27]

1.5.8 Humans and Lumpy Skin Disease

LSD does not infect humans.[28]

1.5.9 Diagnostic Testing

1.5.9.1 Differential Diagnosis

Nodules, fever, and enlarged lymph nodes are characteristic of LSD but occur in other diseases of cattle as well. Differentials include:

- pseudo-lumpy skin disease/bovine herpes mammillitis,
- dermatophilosis,
- ringworm,
- insect or tick bites,
- vaccinia virus and cowpox virus (*Orthopoxviruses*),
- rinderpest,
- demodicosis,
- onchocercosis,
- pseudocowpox (*Parapoxvirus*)
- besnoitiosis,
- *Hypoderma bovis* infestation,

[25] Carter, G. R., Wise, D. J., and Flores, E.F. (2005). *A Concise Review of Veterinary Virology*. Retrieved from http://www.ivis.org/home.asp.
[26] CFSPH. (2008). Lumpy Skin Disease. *Technical Factsheet*. Retrieved from http://www.cfsph.iastate.edu/Factsheets/pdfs/lumpy_skin_disease.pdf.
[27] EFSA. (2015). Scientific Opinion on Lumpy Skin Disease. EFSA Panel on AHAW. *EFSA Journal*, *13*(1): 3986.
[28] CFSPH. (2008). Lumpy Skin Disease. *Technical Factsheet*. Retrieved from http://www.cfsph.iastate.edu/Factsheets/pdfs/lumpy_skin_disease.pdf.

- photosensitization,
- bovine papular stomatitis,
- urticaria, and
- cutaneous tuberculosis.[29,30]

1.5.9.2 Laboratory Tests

SPPV, GTPV, and LSDV cannot be differentiated from each other by serological tests. Therefore, serum neutralization test (SNT), fluorescent antibody test (FAT), indirect fluorescent antibody test (IFAT), and agar gel immunodiffusion (AGID) will not be able to distinguish between the three capripoxviruses.[31]

Laboratory confirmation of LSDV is found through polymerase chain reaction (PCR) for *capripoxviruses*, transmission electron microscopy, virus isolation, or a capripox antigen detection enzyme-linked immunosorbent assays enzyme-linked immunosorbent assay (ELISA).[32]

1.6 Environmental Persistence of Lumpy Skin Disease

OIE states the following about the resistance of LSDV to physical and chemical action.[33]

- Temperature: Susceptible to 55°C/2 hours, 65°C/30 minutes. Can be recovered from skin nodules kept at -80°C for 10 years and infected tissue culture fluid stored at 4°C for 6 months.
- pH: Susceptible to highly alkaline or acid pH. No significant reduction in titre when held at pH 6.6–8.6 for 5 days at 37°C.
- Chemicals/disinfectants: Susceptible to ether (20 percent), chloroform, formalin (1 percent), and some detergents, e.g., sodium dodecyl sulphate. Susceptible to phenol (2 percent/15 minutes), sodium hypochlorite (2–3 percent), iodine compounds (1:33 dilution), Virkon® (2 percent), and quarternary ammonium compounds (0.5 percent).
- Survival: LSDV is remarkably stable, surviving for long periods at ambient temperature, especially in dried scabs. LSDV is very resistant to inactivation, surviving in necrotic skin nodules for up to 33 days or longer, desiccated crusts for up to 35 days, and at least 18 days in air-dried hides. It can remain viable for long periods in the environment. The virus is susceptible to sunlight and detergents containing lipid solvents, but in dark environmental conditions, such as contaminated animal sheds, it can persist for many months.

[29] CFSPH. (2008). Lumpy Skin Disease. *Technical Factsheet*. Retrieved from http://www.cfsph.iastate.edu/Factsheets/pdfs/lumpy_skin_disease.pdf.
[30] OIE. (2013). Lumpy Skin Disease. *Technical Disease Card*. Retrieved from www.oie.int.
[31] EFSA. (2015). Scientific Opinion on Lumpy Skin Disease. EFSA Panel on AHAW. *EFSA Journal*, *13*(1): 3986.
[32] OIE. (2013). Lumpy Skin Disease. *Technical Disease Card*. Retrieved from www.oie.int.
[33] OIE. (2013). Lumpy Skin Disease. *Technical Disease Card*. Retrieved from www.oie.int.

1.7 Vaccination

Historically, four live attenuated strains of capripoxvirus vaccines have been used in order to control LSDV outbreaks (not licensed for use in the United States):

- Kenyan sheep and goat pox virus strain,
- Yugoslavian RM 65 sheep pox strain,
- Romanian sheep pox strain, and
- LSDV strain from South Africa.

Cattle are protected from vaccinations derived from sheep or goats because all strains of *capripoxviruses* share a major neutralizing site. Theoretically, inoculation with one strain leads to immunity against all others. In practice, cattle vaccination with sheep and goat pox strains leads to insufficient protection, so they are only used in countries where sheep and goat pox are endemic. Since sheep and goat pox have not occurred in South Africa, only the LSDV strain vaccine is used in this region. There are no vaccines or tests to differentiate infected from vaccinated animals (DIVA).[34]

The OIE recommends that when using a vaccine meant for sheep or goats, it should first be tested on the most susceptible breeds in peak lactation. Capripoxvirus vaccines cause a visible reaction at the inoculation site in *Bos taurus*. The risk for LSDV outbreaks in herds with these species can be much higher, as many owners refuse to vaccinate their animals because of this side effect.[35]

1.8 Disease Control

LSD is a reportable disease in the United States. Since fomites, animals, and animal products can spread disease, quarantines, movement control, insect control (insecticides/repellants), and stamping-out methods followed by cleaning and disinfection are critical in controlling the spread of LSD. Vaccination is another method of control. Antibiotics may be important for treatment of secondary infections. In 1989, Egypt and Israel used both vaccination and depopulation to control LSD outbreaks.[36] The European Food Safety Authority also view vaccination as a highly effective disease control mechanism.[37]

1.9 Recent Outbreaks

1.9.1 Israel

LSD outbreaks occurred in Israel in 1989, 2006, 2007, and 2012. Depopulation and vaccination methods were used to control these outbreaks. In the 2007 outbreak, LSD infected cattle had already been vaccinated with the Yugoslavian RM 65 sheep pox strain vaccine, indicating that it failed at preventing initial infection and spread. In the 2012 Israel outbreak, infected cattle were

[34] EFSA. (2015). Scientific Opinion on Lumpy Skin Disease. EFSA Panel on AHAW. *EFSA Journal, 13*(1): 3986.
[35] OIE. (2016). Lumpy Skin Disease. *Terrestrial Manual*. Retrieved from www.oie.int.
[36] CFSPH. (2008). Lumpy Skin Disease. *Technical Factsheet*. Retrieved from http://www.cfsph.iastate.edu/Factsheets/pdfs/lumpy_skin_disease.pdf.
[37] EFSA. (2016). Lumpy Skin Disease: Vaccination is Most Effective Control Method. Press Release. Retrieved from http://www.efsa.europa.eu/en/press/news/160809.

originally vaccinated with the RM 65 sheep pox strain vaccine. Nine months later, the LSDV South African strain or a 10-fold dose of RM 65 strain vaccine were administered to the same animals previously vaccinated. Both vaccines were more effective than the original RM 65 vaccination, with the LSDV vaccine proving to be the most effective.[38]

1.9.2 Turkey and Jordan

Turkey and Jordan both reported first outbreaks of LSD in 2013. The outbreak in Turkey occurred during the winter season, when potential arthropod vectors are at their lowest numbers. It is suspected then that illegal movement of sick or asymptotic cattle were responsible for the disease spread.[39]

1.9.3 Eastern Africa and the Middle East

Cattle trade typically flows from Eastern Africa to the Middle East. Movements surge during Islamic celebrations when cattle trade increases rapidly. Regulations and monitoring for disease in animals during these times may lessen, allowing LSD to be introduced into new regions. Furthermore, droughts and civil unrest, such as the ongoing situation in Syria and neighboring countries, increase the risk for LSD spread. National crises lead to a weakening of all government and regulatory systems—Syrian veterinary services halted in 2012, leaving livestock unvaccinated and vulnerable to many diseases. Refugees fleeing violence bring unregulated livestock into neighboring countries, potentially introducing and spreading disease.[40]

1.9.4 Russia and Kazakhstan

July 7, 2015 marked the first time tests came back positive for LSD in Russian history. Outbreaks continued until December 30th. There were a total of 130 positive cases in three separate southwestern republics. Currently, in 2016, there have been 52 outbreaks since July, with 155 positive cases in similar regions of Russia as in 2015. The source of these outbreaks remains unknown.[41,42]

LSD was confirmed in Kazakhstan for the first time on July 21, 2016. So far there have been 459 positive cases. The infected regions of Kazakhstan are just across the border from the similarly infected regions of Russia.[43]

[38] EFSA. (2015). Scientific Opinion on Lumpy Skin Disease. EFSA Panel on AHAW. *EFSA Journal*, *13*(1): 3986.
[39] EFSA. (2015). Scientific Opinion on Lumpy Skin Disease. EFSA Panel on AHAW. *EFSA Journal*, *13*(1): 3986.
[40] EFSA. (2015). Scientific Opinion on Lumpy Skin Disease. EFSA Panel on AHAW. *EFSA Journal*, *13*(1): 3986.
[41] OIE. (2016). Immediate notifications and Follow-ups. Retrieved from http://www.oie.int/wahis_2/public/wahid.php/Diseaseinformation/Immsummary.
[42] Lebedev, N. (2016). Standing Group of Experts on Lumpy Skin Disease in Europe under the GF-TADs Umbrella. Retrieved from http://web.oie.int/RR-Europe/eng/Regprog/docs/docs/LSD1/LSD1%20-%20Russia.pdf.
[43] OIE. (2016). Immediate notifications and Follow-ups. Retrieved from http://www.oie.int/wahis_2/public/wahid.php/Diseaseinformation/Immsummary.

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Attachment 1.B Abbreviations

AGID	agar gel immunodiffusion
AHAW	Animal Health and Welfare
APHIS	Animal and Plant Health Inspection Service
CABI	Center for Agriculture and Biosciences International
CFSPH	Center for Food Security and Public Health
DIVA	differentiating infected from vaccinated animals
DNA	deoxyribonucleic acid
EFSA	European Food Safety Authority
ELISA	enzyme-linked immunosorbent assay
FAD PReP	Foreign Animal Disease Preparedness and Response Plan
FAT	fluorescent antibody test
GTPV	goat pox virus
IFAT	indirect fluorescent antibody test
LSD	lumpy skin disease
LSDV	lumpy skin disease virus
OIE	World Organization for Animal Health
PCR	polymerase chain reaction
SNT	serum neutralization test
SOP	standard operating procedure
SPPV	sheep pox virus
USDA	U.S. Department of Agriculture

COMMISSION IMPLEMENTING DECISION (EU) 2023/1521

of 19 July 2023

concerning certain special disease control measures for a limited period of time relating to infection with lumpy skin disease virus in certain Member States

(notified under document C(2023) 4811)

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) 2016/429 of the European Parliament and of the Council of 9 March 2016 on transmissible animal diseases and amending and repealing certain acts in the area of animal health ('Animal Health Law') [1], and in particular Article 71(3), point (a), thereof,

Whereas:

(1) Infection with lumpy skin disease (LSD) virus, caused by lumpy skin disease virus (LSDV), is a vector-borne disease of bovine animals that causes substantial economic losses, reduces milk yield, causes severe emaciation, permanent damage to hides, several secondary complications, months-long chronic debility, and incurs trade bans. The disease is endemic in Africa and is included in the World Organisation for Animal Health list of notifiable diseases.

(2) LSD occurred in the Union for the first time in 2015 in Greece. In 2016, the disease quickly spread in many countries of South East Europe including Albania, Bulgaria, Greece, Kosovo *, North Macedonia, Montenegro and Serbia. In all affected countries the disease was placed effectively under control through mass vaccination of bovine animals, with live homologous vaccines, repeated on an annual basis, in accordance with vaccines' specifications. In addition, Croatia and Bosnia and Herzegovina, that were not affected by LSD, implemented vaccination as a preventive measure, in view of disease occurrence in neighbouring countries.

(3) Commission Implementing Regulation (EU) 2021/1070 [2] was adopted within the framework of Regulation (EU) 2016/429, and it lays down special control measures against LSD for a limited period of time. That Implementing Regulation applied until 21 April 2023.

(4) More particularly, Implementing Regulation (EU) 2021/1070, defines the zones of a Member State, where vaccination against LSD is carried out, and the special disease control rules within each zone. These zones are classified as restricted zone I, located outside an area where an outbreak of infection with LSDV has been confirmed, and restricted zone II, which includes an area where an outbreak of infection with LSDV has been confirmed.

(5) Furthermore, Implementing Regulation (EU) 2021/1070, provided for restrictions regarding the movements of bovine animals and products thereof, germinal products, and animal by-products from restricted zone I and II, and derogations in relation to these restrictions. In addition, it provided rules for the operators' obligations with regard to animal health certificates for movements of bovine animals, germinal products and unprocessed animal by-products thereof, from restricted zones I and II, outside these zones.

[1] OJ L 84, 31.3.2016, p. 1.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

[2] Commission Implementing Regulation (EU) 2021/1070 of 28 June 2021 laying down special control measures for a limited period of time related to infection with lumpy skin disease virus (OJ L 230, 30.6.2021, p. 10).

(6) Commission Delegated Regulation (EU) 2023/361 [1], entered into force on 12 March 2023, and it lays down rules for the use of certain veterinary medicinal products for the purpose of prevention and control of certain listed diseases, including rules for vaccination against LSD. In addition, Article 9 of that Delegated Regulation and Annex IX thereto provide for the establishment of vaccination zones I and II that correspond to the restricted zones I and II of Implementing Regulation (EU) 2021/1070.

(7) In addition, Delegated Regulation (EU) 2023/361 lays down rules and restrictions in relation to bovine animals vaccinated for LSD, their germinal products and unprocessed animal by-products thereof that correspond to the rules and restrictions laid down in Implementing Regulation (EU) 2021/1070, except for those related to the operators' obligations with regard to animal health certificates.

(8) Delegated Regulation (EU) 2023/361 also provides for recovery periods for LSD, following emergency protective vaccination, that range between 8 and 26 months, depending on the type of surveillance, the vaccination zone, and the time of the slaughter or killing of the last LSD case and/or the time of the last vaccination.

(9) Since 2017, no LSD outbreaks have been reported in Europe although LSD was recorded until 2021 in parts of Anatolia, Türkiye and remains present in Russia while it continues to spread in Asia, affecting countries of the Indian subcontinent, East Asia and South East Asia. In view of the favourable epidemiological situation in Europe, all countries in South East Europe that implemented vaccination against LSD have now ceased, except for Bulgaria, Greece and Türkiye.

(10) Bulgaria and Greece have already submitted their 2023 LSD vaccination programmes to the Commission, and these have already been evaluated and approved, in the framework of Regulation (EU) 2021/690 of the European Parliament and of the Council [2]. The nature and content of the technical evaluation and approval of those vaccination programmes also fulfil the requirements of the official vaccination plan for the prevention and control of category A diseases in terrestrial animals laid down in Article 6 of Delegated Regulation (EU) 2023/361.

(11) In view of the expiry of Implementing Regulation (EU) 2021/1070, it is essential to list the areas defined as vaccination zones I and II in relation to LSD, in Bulgaria and Greece, that correspond to the restricted zones I and II of Implementing Regulation (EU) 2021/1070, and to lay down additional rules regarding the operators' obligations with regard to animal health certificates for movements of bovine animals, as well as those for germinal products and unprocessed animal by-products thereof, from vaccination zones I and II, outside these zones, to ensure that these animal health certificates provide adequate and accurate health information and there is a continuity with the measures previously in place.

(12) Taking into account the LSD vaccination plans of Bulgaria and Greece for 2023, the epidemiological situation as regards that disease in the Union, and the recovery period for LSD, as laid down in Delegated Regulation (EU) 2023/361, this Decision should apply until 31 August 2024.

(13) The measures provided for in this Decision are in accordance with the opinion of the Standing Committee on Plants, Animals, Food and Feed,

[1] Commission Delegated Regulation (EU) 2023/361 of 28 November 2022 supplementing Regulation (EU) 2016/429 of the European Parliament and the Council as regards rules for the use of certain veterinary medicinal products for the purpose of prevention and control of certain listed diseases (OJ L 52, 20.2.2023, p. 1).

[2] Regulation (EU) 2021/690 of the European Parliament and the Council of 28 April 2021 establishing a programme for the internal market, competitiveness of enterprises, including small and medium-sized enterprises, the area of plants, animals, food and feed, and European statistics (Single Market Programme) and repealing Regulations (EU) No 99/2013, (EU) No 1287/2013, (EU) No 254/2014 and (EU) No 652/2014 (OJ L 153, 3.5.2021, p. 1).

HAS ADOPTED THIS DECISION:

Article 1

Subject matter and scope

This Decision establishes at Union level:

(a) vaccination zones I and II, in relation to emergency protective vaccination against lumpy skin disease in kept terrestrial animals, that are required to be established in accordance with Article 9(1), point (b)(i), of Delegated Regulation (EU) 2023/361, and Annex IX, Part 1, thereto;

(b) operators' obligations with regard to animal health certificates for movements of the following consignments from vaccination zones I and II outside those zones, in accordance with the derogations for such movements provided for in Article 13(2), (3) and (4) of Delegated Regulation (EU) 2023/361, and the specific conditions laid down in Annex IX, Part 3, thereto:

(i) bovine animals;

(ii) germinal products of bovine animals;

(iii) unprocessed animal by-products.

Article 2

Establishment of vaccination zones I and II

Member States implementing emergency protective vaccination against lumpy skin disease shall ensure that:

(a) vaccination zones I and II are established immediately by their competent authorities, in accordance with:

(i) the rules for the implementation of emergency protective vaccination laid down in Article 9 of Delegated Regulation (EU) 2023/361;

(ii) the specific conditions for the implementation of emergency protective vaccination for the prevention and control of lumpy skin disease laid down in Annex IX, to Delegated Regulation (EU) 2023/361;

(b) the vaccination zones I and II comprise at least the areas listed in the Annex to this Decision.

Article 3

Operators' obligations with regard to animal health certificates for movements of consignments of bovine animals from vaccination zones I and II outside those zones

Operators shall only move consignments of bovine animals from vaccination zones I and II outside those zones within the same Member State or to another Member State if the animals to be moved, in accordance with the derogation for such movements laid down in Article 13(2) of Delegated Regulation (EU) 2023/361, and the specific conditions laid down in Annex IX, Part 3, thereto, are accompanied by an animal health certificate issued by the competent authority of the Member State of origin in accordance with Article 149(1) of Regulation (EU) 2016/429, that contains at least one of the following attestations:

(a) 'Bovine animals from vaccination zone I in relation to emergency protective vaccination against lumpy skin disease, in compliance with Article 13(2) of, and Annex IX, Part 3, point (3.1), to Commission Delegated Regulation (EU) 2023/361.';

(b) 'Bovine animals from vaccination zone II in relation to emergency protective vaccination against lumpy skin disease, in compliance with Article 13(2) of, and Annex IX, Part 3, point (3.2), to Commission Delegated Regulation (EU) 2023/361.';

(c) 'Bovine animals from vaccination zone...(I or II, indicate as appropriate) in relation to emergency protective vaccination against lumpy skin disease, in compliance with Article 13(2) of, and Annex IX, Part 3, point (3.3), to Commission Delegated Regulation (EU) 2023/361.'.

However, in the case of movements within the same Member State, the competent authority may decide that an animal health certificate does not have to be issued as referred to in the second subparagraph of Article 143(2) of Regulation (EU) 2016/429.

Article 4

Operators' obligations with regard to animal health certificates for movements of consignments of germinal products obtained from bovine animals from establishments located in vaccination zones I and II outside those zones

Operators shall only move consignments of germinal products obtained from bovine animals from vaccination zones I and II outside those zones within the same Member State or to another Member State, in accordance with the derogation for such movements laid down in Article 13(3) of Delegated Regulation (EU) 2023/361, and the specific conditions laid down Annex IX, Part 3, thereto, if those consignments are accompanied by an animal health certificate issued by the competent authority of the Member State of origin, in accordance with Article 161(4) of Regulation (EU) 2016/429, that contains at least one of the following attestations:

(a) 'Germinal products… (semen, ova and/or embryos, indicate as appropriate) obtained from bovine animals kept in vaccination zone I in relation to emergency protective vaccination against lumpy skin disease, in compliance with Article 13(3) of, and Annex IX, Part 3, point (3.4.1), to Commission Delegated Regulation (EU) 2023/361.';

(b) 'Germinal products ... (semen, ova and/or embryos, indicate as appropriate) obtained from bovine animals kept in vaccination zone II in relation to emergency protective vaccination against lumpy skin disease, in compliance with Article 13(3) of, and Annex IX, Part 3, point (3.4.2), to Commission Delegated Regulation (EU) 2023/361.'.

However, in the case of movements within the same Member State, the competent authority may decide that an animal health certificate does not have to be issued as referred to in the second subparagraph of Article 161(2) of Regulation (EU) 2016/429.

Article 5

Operators' obligations with regard to animal health certificates for movements of consignments of unprocessed animal by-products from bovine animals from vaccination zones I and II outside those zones

Operators shall only move consignments of unprocessed animal by-products from bovine animals from vaccination zones I and II outside those zones within the same Member State or to another Member State, in accordance with the derogation for such movements laid down in Article 13(3) of Delegated Regulation (EU) 2023/361, and the specific conditions laid down in Annex IX, Part 3, thereto, if those consignments are accompanied by an animal health certificate referred to in Article 22(5) and (6) of Commission Delegated Regulation (EU) 2020/687 ([1]) using the health model certificate for the movement of animal by-products from restricted zones set out in Annex VIII, Chapter III, point 7, to Commission Regulation (EU) No 142/2011 ([2]), containing at least one of the following attestations:

([1]) Commission Delegated Regulation (EU) 2020/687 of 17 December 2019 supplementing Regulation (EU) 2016/429 of the European Parliament and the Council, as regards rules for the prevention and control of certain listed diseases (OJ L 174, 3.6.2020, p. 64).

([2]) Commission Regulation (EU) No 142/2011 of 25 February 2011 implementing Regulation (EC) No 1069/2009 of the European Parliament and of the Council laying down health rules as regards animal by-products and derived products not intended for human consumption and implementing Council Directive 97/78/EC as regards certain samples and items exempt from veterinary checks at the border under that Directive (OJ L 54, 26.2.2011, p. 1).

(a) 'Unprocessed animal by-products… (unprocessed animal by-products other than hides and skins, hides and skins, colostrum, milk and dairy products, indicate as appropriate) obtained from bovine animals kept in vaccination zone I in relation to emergency protective vaccination against lumpy skin disease, in compliance with Article 13(3) of, and Annex IX, Part 3, points (3.5) and (3.7), to Commission Delegated Regulation (EU) 2023/361.';

(b) 'Unprocessed animal by-products… (unprocessed animal by-products other than hides and skins, hides and skins, colostrum, milk and dairy products, indicate as appropriate) obtained from bovine animals kept in vaccination zone II in relation to emergency protective vaccination against lumpy skin disease, in compliance with Article 13(3) of, and Annex IX, Part 3, points (3.6) and (3.7), to Commission Delegated Regulation (EU) 2023/361.'.

However, in the case of movements within the same Member State, the competent authority may decide that an animal health certificate shall not be issued as referred to in Article 22(6) of Delegated Regulation (EU) 2020/687.

Article 6

Application

This Decision shall apply until 31 August 2024.

Article 7

Addressee

This Decision is addressed to the Member States.

Done at Brussels, 19 July 2023.

For the Commission
Stella KYRIAKIDES
Member of the Commission

ANNEX

VACCINATION ZONES I and II

Vaccination zone I

1. Bulgaria:

   The entire territory of Bulgaria

2. Greece:

   The entire territory of Greece

Vaccination zone II

None

ランピースキン病防疫対策要領

作成：令和６年１月 23 日付け５消安第 6169 号農林水産消費・安全局長通知

１　はじめに

（１）ランピースキン病の特徴

ランピースキン病（以下「本病」という。）はポックスウイルス科カプリポックスウイルス属ランピースキン病ウイルス（以下「本病ウイルス」という。）による牛及び水牛の疾病である。アフリカの大部分で流行し、2010 年代に中東の一部、トルコ及び南ヨーロッパにおいて発生がみられ、2019 年以降アジアにも発生が拡大した。罹患率は５～45%程度、ワクチン非接種下における死亡率は一般的に１～５%と低いが、個体群によっては罹患率が高くなることもあり、活力の低下、乳量の減少、流産、不妊、皮膚の損傷、二次的な細菌感染等により経済的損失が生じる。本病は主に牛の疾病であるが、水牛でも感染事例が報告されている。なお、ヒトに感染した事例は報告されていない。

本病の感染拡大の主な要因は、感染した牛の移動と、蚊、サシバエ、ヌカカ、マダニ等の吸血昆虫（以下「ベクター」という。）による機械的伝播と考えられている。本病ウイルスはベクターの体内で６日間生存するとの報告があり、ヌカカのような飛翔性のベクターの一部は、風に乗って新しい地域に本病ウイルスを持ち込む可能性がある。また、本病ウイルスに汚染された飲用水や飼料も感染を広げる要因となり得るとの報告もある。

本病ウイルスは、環境中においても長期間生存する可能性があり、乾燥した痂皮で 35 日間、日光が当たらない環境の中で数か月間生存することが報告されている。他方、エタノール、次亜塩素酸ナトリウム、逆性石けん等の畜産現場で用いられる一般的な多くの消毒剤に感受性がある。

牛の場合には、本病ウイルスは皮膚病変、唾液、鼻汁、乳汁、精液等から検出され、子宮内の胎子にも感染する。本病の潜伏期間は４～14 日間と考えられているが、本病ウイルスに感染した牛の臨床症状は、不顕性のものから重篤なものまで様々であり、発熱、鼻漏、流涎、食欲不振、泌乳量低下及び表在リンパ節の腫大に加え、皮膚及び粘膜に病変が確認される。皮膚は、最初は硬く、かつ、丸くわずかに盛り上がり、その後直径１～８cm の完全に肥厚した結節に発展する。結節が数個しかない牛もいれば、多数確認されるものもいる。結節は、特に頭部、頸部、乳房、生殖器、会陰部等の体毛のまばらな部位に確認されるが、全身を覆うこともある。結節の多くはその後、特徴的な逆円錐状の壊死巣を形成し、表皮、真皮及び皮下組織のほか時にはその下の筋肉にまで達することがある。また、壊死巣は、皮膚に穴を残して脱落し、二次的な細菌感染を起こすことがある。二次的な細菌感染は、乳頭及び乳腺の損傷、畝行並びに雄牛の恒久的な不妊及び雌牛の流産を起こすことがある。重症の牛は死亡することもあるが、ほとんどの牛は徐々に回復する。回復には数か月かかり、皮膚病変によっては１～２年かかるも

のもある。
なお、本病に対する有効な治療法はない。

（2）ランピースキン病に対する防疫対策の基本的な考え方

本病は、家畜伝染病予防法（昭和 26 年法律第 166 号。以下「家伝法」という。）第４条第１項に規定する届出伝染病であることを踏まえ、その防疫対策を講ずることとする。

本病を発症した牛の早期発見、隔離、移動の自粛又はとう汰、ワクチン接種等の総合的な防疫対策によって、本病の発生及び感染拡大を効率的かつ効果的に防止し、本病による被害を最小限にすることを目的とし、我が国において本病の発生が確認された場合には、速やかにこれらの対策を講ずることとする。

2　発生の予防

（1）水際対策

我が国における本病の発生は、これまで確認されていないことから、本病発生国からの本病ウイルスの侵入を防ぐことが重要である。

現在、本病発生国からの生きた牛及び水牛並びにこれらの精液の輸入は禁止されていることから、これらを介した本病ウイルスが我が国に侵入するリスクは低い。一方、近隣諸国で本病が発生した後、ベクターが我が国に侵入し、当該ベクターが牛又は水牛に接触した場合、本病の感染の原因となる可能性は否定できないことから、水際におけるベクターの駆除等の対策が重要である。

（2）農場での対策

平時から家畜伝染病予防法施行規則（昭和 26 年農林省令第 35 号）別表第２の飼養衛生管理基準を遵守することにより、本病の発生を防ぐことが重要である。家畜防疫員は、本病の特徴的な臨床症状及び本病の対策として特に重要な以下の項目について、家畜の所有者（牛又は水牛の所有者をいう。以下同じ。）、獣医師等の関係者に周知する。

① 本病発生国からの飼養器具等といった本病ウイルスが付着しているおそれのある物品の持込みが感染の原因となることから、原則として農場内に持ち込まないこと。やむを得ず持ち込む場合は、洗浄、消毒その他必要な措置を講ずること。

② ベクターが牛等（飼養されている牛及び水牛をいう。以下同じ。）に接触し、感染が成立する可能性があることから、平時から害虫の防除を行うために殺虫剤の散布その他必要な措置を講ずること。

③ 血液を介して本病の感染が成立する報告もあることから、注射針、人工授精用器具その他体液（生乳を除く。）が付着する物品を使用する際は、１頭ごとに確実に交換又は消毒を実施すること。

④　本病を発症した牛等の早期発見が重要であることから、牛等を定期的に観察し、当該症状を認めた場合には速やかに家畜保健衛生所（以下「家保」という。）に連絡すること。

3　本病を疑う異状を認めた場合の対応

（1）家畜の所有者、獣医師等の対応

家畜の所有者、獣医師等の関係者は、本病の感染が疑われる牛等を認めた場合には、速やかに管轄の家保に連絡すること。

（2）都道府県の対応

①　家畜防疫員は、家畜の所有者、獣医師等から（1）による連絡を受け、本病を否定できないと判断した場合には、家伝法第 51 条に基づき本病の感染が疑われる牛等が飼養されている農場に立ち入り、当該牛等及び当該牛等以外の牛等であって当該農場で飼養されているもの（以下「同居牛等」という。）に対し、本病の感染が疑われる症状の有無について徹底した臨床検査を行う。その際、必要に応じてデジタルカメラ等により病変部位等の写真を撮影する。

都道府県家畜衛生主務課は、当該家畜防疫員が本病の特徴的な臨床症状等を確認した場合には、病変部位等の写真、当該牛等の症状、同居牛等の状況等の情報を添えて、別紙１により、農林水産省消費・安全局動物衛生課（以下「動物衛生課」という。）に報告する。

②　都道府県家畜衛生主務課に対する動物衛生課からの求めに応じ、家畜防疫員は、別紙３に示す方法により検体を採取し、別紙２を添付の上、国立研究開発法人農業・食品産業技術総合研究機構動物衛生研究部門海外病研究拠点（以下「動物衛生研究部門」という。）に検体を送付する。

（3）農場における措置

家畜防疫員は、（2）の②により検体を採取した農場の家畜の所有者に対し、検体を採取した牛等及び同居牛等が本病に感染していないと判定されるまでは、次の措置を講ずるよう指導する。なお、（2）の②による検体の採取が行われた日（以下「検体採取日」という。）を起算日とする期間の計算において、当該検体採取日当日は、不算入とする。

①　当該農場の次のアからエまでに掲げるものの移動を自粛する。

ア　生きた牛等

イ　生乳（（2）の②による検体の採取が行われた時以降に当該検体を採取した牛等（当該検体の採取が行われた時以降に本病を疑う症状がみられた同居牛等が確認された場合には、当該同居牛等を含む。）から搾乳されたものに限る。）

ウ　精液（検体採取日から過去 42 日より前に採取されたものを除く。）

エ　その他動物衛生課が指示したもの

② 当該農場で飼養管理に使用した器具等を農場外に搬出する際は、農場出入口で消毒する。

③ 当該農場に関する次のアからエまでの疫学情報を収集する。

ア　検体採取日から過去35日間の牛等の移動履歴

イ　検体採取日から過去35日間の当該農場に出入りしている人及び車両の移動範囲並びにこれらの入退場履歴

ウ　検体採取日から過去42日間に当該農場で採取された精液の出荷先

エ　その他動物衛生課が指示したもの

4　病性の判定

（1）動物衛生研究部門による検査

動物衛生研究部門は、3の（2）の②により都道府県から検体の送付があった場合には、遺伝子検査を行い、その結果について、動物衛生課に報告する。

（2）動物衛生課による対応

動物衛生課は、（1）の報告内容を都道府県家畜衛生主務課に連絡する。

（3）都道府県による対応

都道府県家畜衛生主務課は、（2）を踏まえ、病性の判定を行う。

5　まん延の防止

家畜防疫員、家畜の所有者、獣医師等の関係者は、本病のまん延を防止するため、次の措置を講ずることが望ましい。

（1）発生農場における措置

① 同居牛等の検査等

家畜防疫員は、4により本病に感染していると判定された牛等（以下「真症牛等」という。）が確認された農場（以下「発生農場」という。）において同居牛等に本病の症状がないか徹底した臨床検査を行う。また、家畜の所有者に対し、②から④までの措置を講ずるとともに、疑症牛等（4の（3）の病性の判定の時以降に、本病を疑う症状がみられた同居牛等をいう。以下同じ。）を確認した場合には、当該確認を行った日を記録するよう指導する。

② 真症牛等及び疑症牛等の隔離

家畜の所有者は、真症牛等及び疑症牛等について、③のア及びイにより陰性が確認されるまでの間、同居牛等と接触しないよう速やかに隔離し、畜舎の清掃・消毒を行う。また、ベクターによる感染拡大を防止するため、殺虫剤の散布を実施するとともに、ベクター忌避剤の使用等により、真症牛等及び疑症牛等にベクターが接触しないようにする。

特に、共同放牧場等の複数の家畜の所有者が牛等を飼養する農場で真症牛等が確認された場合には、速やかに隔離するとともに、同居牛等の検査等を行う。

これらの措置を講ずることが困難な場合は、発生農場におけるワクチン接種が既に実施されている場合であっても、真症牛等及び疑症牛等の自主とう汰を検討する。

③　移動及び出荷の自粛等

家畜の所有者は、次のアからエまでの措置を講ずる。なお、真症牛等判定日（4の（3）の判定が行われた日をいう。以下同じ。）及び疑症牛等確認日（①の疑症牛等の確認が行われた日いう。以下同じ。）を起算日とする期間の計算において、当該真症牛等判定日当日及び当該疑症牛等確認日当日は、不算入とする。

ア　真症牛等について、家畜防疫員により皮膚病変の症状の消失が確認され、又は当該真症牛等に係る真症牛等判定日から 28 日目の日より後に実施する抗原検査（ウイルス分離検査又は遺伝子検査をいう。以下同じ。）において陰性が確認されるまでの間、当該真症牛等の他の農場、家畜市場、と畜場等への移動及び出荷並びに当該真症牛等に係る3の（3）の①のイの生乳の移動及び出荷を自粛する（当該自粛の対象となった生乳は、本病ウイルスに汚染されているおそれがあるものとして廃棄する。）。当該真症牛等に係る3の（3）の①のウの精液については、当該真症牛等に係る真症牛等判定日から 42 日目の日より後に実施する遺伝子検査において陰性が確認されるまでの間、移動及び出荷を自粛する（当該自粛の対象となった精液は、本病ウイルスに汚染されているおそれがあるものとして廃棄する。）。

イ　疑症牛等について、家畜防疫員により皮膚病変の症状の消失が確認され、又は当該疑症牛等に係る疑症牛等確認日から 28 日目の日より後に実施する抗原検査において陰性が確認されるまでの間、当該疑症牛等の他の農場、家畜市場、と畜場等への移動及び出荷並びに当該疑症牛等に係る生乳（当該疑症牛等に係る疑症牛等確認時（①の疑症牛等の確認が行われた時点をいう。）以降に当該疑症牛等から搾乳されたものに限る。）の移動及び出荷を自粛する（当該自粛の対象となった生乳は、本病ウイルスに汚染されているおそれがあるものとして廃棄する。）。当該疑症牛等に係る精液（疑症牛等確認日から過去42日より前に当該疑症牛等から採取されたものを除く。）については、当該疑症牛等に係る疑症牛等確認日から 42 日目の日より後に実施する遺伝子検査において陰性が確認されるまでの間、移動及び出荷を自粛する（当該自粛の対象となった精液は、本病ウイルスの汚染されているおそれがあるものとして廃棄する。）。

ウ　同居牛等（疑症牛等を除く。）について、発生農場における真症牛等判定日（当該農場において複数の真症牛等が確認されている場合にあっては、最後に確認された真症牛等に係る真症牛等判定日）又は疑症牛等確認日（当該農

場において複数の疑症牛等が確認されている場合にあっては、最後に確認された疑症牛等に係る疑症牛等確認日）のいずれか遅い日から 28 日目の日より後に実施する臨床検査において陰性が確認されるまでの間、当該同居牛等の他の農場、家畜市場等への移動（と畜場への出荷のための移動を除く。）を自粛する。ただし、本病のワクチン接種後３週間を経過した当該同居牛等については、この限りでない。

エ　真症牛等及び疑症牛等の死体について、消毒後ビニールシートで覆うなど、ウイルスを広げるおそれがない方法で化製場等へ運搬する場合を除き、移動を自粛する。

④　清掃・消毒

家畜の所有者は、真症牛等及び疑症牛等が触れた又は触れた可能性がある飼料等を同居牛等に接触させないようにし、敷料、排せつ物等について適切に発酵消毒（55℃で２時間又は 65℃で 30 分間）等を行い、飼養管理に使用する器具等を定期的に消毒し、及び当該器具等を農場外に持ち出す場合には十分に消毒する。

（２）周辺地域等における措置

①　本病はベクターによっても感染が広がることから、家畜防疫員は、発生農場を中心とした半径 20km 以内の農場の家畜の所有者に対し、害虫の防除を行うための殺虫剤の散布その他必要な措置を講ずるよう指導する。また、サシバエには 24 時間で 21～28km を移動する能力があるとの報告があることを踏まえ、発生農場の所在する都道府県に隣接する都道府県においても、家畜の所有者に対し害虫防除対策を徹底するよう指導する。

②　家畜防疫員は、原則として、発生農場を中心とした半径 10km 以内の農場及び３の（３）の③により特定された農場に対し、本病の感染を疑う異状がないか、電話等により確認するとともに、本病の発生に係る注意喚起及び健康観察の徹底について指導する。

③　②により本病ウイルスに汚染されたおそれがあると家畜防疫員が判断した農場については、家畜防疫員が家伝法第 51 条に基づき立入検査を行い、牛等に異状がないことを確認する。また、家畜の所有者に対し、当該判断をした日（同日を除く。）から 28 日目の日までの間は健康観察を行い、異状を認めた場合は、速やかに家保に連絡するよう指導する。

④　③により本病の感染を疑う異状を認めた場合には、３により対応する。

（３）全国における対応

動物衛生課は、都道府県に対し、速やかに本病の発生に係る情報提供を行う。都道府県は、速やかに管内の家畜の所有者、獣医師等の関係者に当該情報を周知するとともに、本病を疑う症状を認めた場合には、速やかに家保に連絡するよう

指導する。

（4）ワクチン

① 本病ワクチンの特徴

海外で一般的に使用されている本病ワクチンは弱毒生ワクチンであり、接種後３週間で抗体が上昇すると考えられている。また、ワクチン接種による副反応として、一時的な発熱、乳量減少、ワクチン接種部位の局所的な壊死及び潰瘍のない皮膚病変（「ニースリング反応」といわれる全身性の病変）がまれにみられることがある。家畜防疫員及び獣医師は、これらの副反応の可能性について、家畜の所有者に丁寧に説明する。

② 接種範囲

都道府県は、原則として、発生農場を中心とした半径 20km 以内の農場における家畜の所有者に対し、本病ワクチンの接種を推奨する。当該家畜の所有者は、本病ワクチンの使用について積極的に検討する。

ただし、複数の地域において発生が確認されるなど、適切なワクチン接種のために必要と考えられる場合は、都道府県はより広い地域においてワクチン接種を推奨することができる。

また、隣接する複数の都道府県で本病の発生が確認されるなど、より広い範囲に感染が拡大したと考えられる場合は、当該複数の都道府県に隣接する都道府県は、当該都道府県において本病の発生が確認されていなくとも、ワクチン接種を推奨する。

ただし、本病ワクチンの使用に当たり、本病ワクチンの薬事承認が得られていない場合には、都道府県は家伝法第６条に基づき家畜防疫員によるワクチン接種を行う。なお、その際、都道府県は民間獣医師等と連携した接種体制の構築を検討する。

③ 接種方法

家畜防疫員又は獣医師が臨床検査を実施した上で、本病の感染を疑う症状がない牛等に対し、本病ワクチンを接種する。

ワクチン接種に使用した注射針には血液が付着し、当該注射針を複数の牛等に使用することは本病ウイルスの伝播リスクとなるだけでなく、他の病原体の伝播リスクにもなることから、当該接種に当たっては、使い捨ての注射針を使用し、同一の注射針を複数の牛等に決して用いることのないようにする。

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（別紙１）

異常家畜の症状等に関する報告

都　道　府　県：
家畜保健衛生所：
担　　当：

１．現地調査　　日時：年　月　日　時　分

２．家畜所有者　　住所：
畜舎の所在地（家畜所有者の住所と異なる場合）：
氏名：

３．農場従業員数及び農場管理責任者名：

４．当該施設の情報
畜種・用途別の飼養頭数：
飼養形態、畜舎数：

５．異状の詳細
異状の確認日時：
異常家畜の頭数、日・月齢：

症状の概要（病変の部位、経過等詳細に記載）：

同居の状況（同畜舎内・同畜房内飼養頭数、同居開始時期等）：

病歴・診療履歴（経時的に詳細に記載）：

６．家畜防疫員の見解：

７．その他関連事項（疫学情報等）：

８．家畜の所有者への指示事項：

９．病性鑑定材料（部位、検体数及び保管方法）：

（別紙２）

病 性 鑑 定 依 頼 書

令和　　年　　月　　日

国立研究開発法人農業・食品産業技術総合研究機構
動物衛生研究部門　所長　殿

依頼機関代表者・氏名

下記のとおり病性鑑定を依頼いたします。

記

１．動物種（品種、性別、個体識別番号等を含む。）

２．鑑定材料（種類及び数量を含む。）

３．鑑定目的
　ランピースキン病の診断

４．発生状況
　別添のとおり（別紙１を添付）
　※直接記入でも構いません

５．連絡先

６．その他特記事項

10

（別紙３）

検体の採材及び送付の方法

１．ランピースキン病を疑う病性鑑定（要領３の（２））

ランピースキン病を疑う病性鑑定の場合、皮膚の病変部組織を優先して採材することとし、必要に応じて、血液、鼻腔スワブ又は唾液を採材する。

（１）皮膚の病変部組織

①材料：皮膚の病変部組織
（複数病変部の組織材料をプールして差し支えない。）

②材料の保存：皮膚の病変部組織を、メス、ハサミ、パンチ生検用器具等を用いて採材する。採材した検査材料は、滅菌された気密性の高いチューブ等に入れ、冷蔵で保存する。なお、希釈液及び保存液は全て滅菌済みの PBS を用いる。

（２）血液

①材料：血清、抗凝固剤（EDTA）加血液

②材料の保存：材料血清は、セラムチューブ等の密栓できる容器に入れる。EDTA 加血液は、EDTA が添加されている真空採血管で採血する。これらを冷蔵で保存する。

（３）鼻腔スワブ、唾液

①材料：鼻腔スワブ、唾液

②材料の保存：検体採取用の滅菌済綿棒等を用いて、鼻腔スワブ又は唾液を採材する。採材した検査材料は、滅菌された気密性の高いチューブ等に入れ、冷蔵で保存する。なお、希釈液及び保存液は全て滅菌済みの PBS を用いる。

２．真症牛等及び疑症牛等の精液（要領５の（１）の③）

（１）精液

①材料：精液

②材料の保存：材料精液は、滅菌された気密性の高いチューブ等に入れ、冷蔵で保存する。

３．材料の送付

採材した材料は、汚染（漏出）防止措置をとった上で、国立研究開発法人農業・食品産業技術総合研究機構動物衛生研究部門（小平海外病研究拠点（東京都小平市））へ、冷蔵（４℃）で送付する。