PREVENTING AND CONTROLLING LUMPY SKIN DISEASE (LSD)

What is a lumpy skin disease (LSD)?

- Morbidity of LSD varies (2–45%), but mortality (deaths) is usually low (less than 10%) [1].
- LSD virus spreads long distances through the movement of clinically affected animals.
- Within a subdistrict, LSD virus is mostly spread by biting insects, including stable flies and mosquitoes. LSD virus can also be spread by ticks.
- Some new strains of LSD virus may also be spread by animal-to-animal contact.

Bringing animals onto the feedlot

- Stock should be bought only from trusted sources. Australia does not have LSD, so Australian cattle will be free of disease.
- Do not bring local cattle onto feedlots unless vaccinated >28 days prior to movement. A proof of vaccination letter should be requested from the supplier.
- Animals can be infected without any clinical signs; even healthy local cattle are a risk.
- Consider not bringing in new animals when cattle movement is high in the local region (e.g. festival time).

Monitor animals closely

- Early detection and removal of clinically affected animals are critical to LSD control.
- Conduct daily examinations on all livestock. Monitor for watery discharge from the eyes and nose and/or a high fever. Later, nodular skin lesions appear, especially on the head, neck, udder, perineum, genitals and limbs.

Vaccination

- Vaccination is **the most effective way** to prevent and control LSD.
- Two vaccines are available: LUMPYVAC® and MEVAC® LSD.
- Vaccinate all animals **on the first day of arrival**, including small calves & pregnant cows.
- Can be done simultaneously with FMD vaccination but **must** use separate needles and syringes for each vaccine and give on opposite sides of the neck.
- The best way to monitor vaccine effectiveness is the occurrence of LSD in animals 28 days after vaccination. While antibody tests are available, immunity to LSD is mostly cell-mediated and not all animals will generate detectable levels of antibodies, although they may still be protected[1].
- Maternal immunity may provide some protection to calves born to vaccinated cows[2]. Calves from vaccinated cows should be vaccinated at 3–4 months of age.
- Minor adverse reactions can occur in a very small proportion of vaccinated animals[3,4]. This is not LSD. These reactions indicate that the vaccine virus is replicating and producing good protection. Reactions include: a local swelling at the vaccination site that resolves in 2 to 4 days, temporary fever, facial swelling, abortion (very rare) and generalised small (<2 cm) superficial skin lumps. These lumps occur within 3 to 14 days after vaccination, are more superficial than LSD, and disappear in 2 to 3 weeks without any scarring.
- Full immunity does not develop until 3 to 4 weeks after vaccination. Vaccinated cattle can still become infected with LSD during this time.

AUSVET feedlot.biosecurity@ausvet.com.au
MLA info@mla.com.au

PHONE
Jakarta +62 821 2303 7587

WEBSITE
www.ausvet.com.au

Vector control

- As few as 20 insects can transmit LSD virus. Therefore, vector control **cannot fully prevent transmission** but may help to reduce the risk.
- All life stages of biting insects must be controlled to break the breeding cycle. An integrated pest management system must be implemented.

The following practices may reduce the risk of LSD entering and spreading in a feedlot. Consider whether cost and effort are worthwhile, relative to other control measures.

- Manage vector breeding areas, such as standing water sources and manure piles, especially from under fence lines. Removal should be done at least every 7 days.
- Improve drainage (effluent and rainwater) in holdings.
- Preserve existing populations of natural enemies of vector species, such as parasitic wasps and mites. Minimise the use of insecticidal fly treatments, which also kill predators.
- Focused use of insecticides[5]. This should not be the principal vector control strategy and should only be used if adequately implemented and a fly monitoring program indicates that control is required. Use larvicides and fly baits in preference to adulticides. Target hot spots rather than broadscale treatment. Rotate chemical groups. Consider withdrawal times for milk and meat.
- Netting particular pens where practical e.g. hospital pens
- Tick control, if relevant in your area

The following practices are unlikely to reduce the risk of LSD entering and spreading in a feedlot and may have adverse impacts on human and animal health:

- The use of insect traps/zappers
- Chemical spraying or fogging

Contact Ausvet for further advice on the use of insecticides.

Management of clinically affected animals

- Movement of clinically affected cattle is the major way that LSD is spread to new regions.
- Clinically affected animals may be a source of infection for other animals (mediated through vectors) and are unlikely to regain full pre-infection production levels. On average, they experience bodyweight losses of 23%[6]. Annual off-take rates (the proportion of animals sold or consumed in a year[7]) may be reduced by up to 6.5%[8].
- Clinically affected animals should be separated from the herd by:

1. Culling on site and disposal by burial or burning. Early culling of infected livestock may limit the duration and magnitude of an LSD outbreak.
2. Moving to a hospital pen away from the rest of the herd and preferably protected from biting insects. Separate staff should tend to clinical animals if possible. If not, change clothes between and tend to sick animals last.
3. Sending for emergency slaughter at the closest possible abattoir if local regulations permit this movement.

General biosecurity measures implemented for FMD control will also help reduce the risk of LSD introduction into feedlots. For more information on LSD prevention and control visit our website at **http://wp-new.ausvet.com.au/projects/indonesia-biosecurity-support/** or come along to our workshops in September 2023. Contact Ausvet for further details.

---

1 Tuppurainen, E., Alexandrov, T. & Beltrán-Alcrudo, D. 2017. Lumpy skin disease field manual – A manual for veterinarians. FAO Animal Production and Health Manual No. 20. Rome. Food and Agriculture Organization of the United Nations (FAO).

2 https://animalhealthaustralia.com.au/wp-content/uploads/2022/08/AUSVETPLAN-Manuals_Response_Lumpy-skin-disease.pdf

3 Morgenstern,M., Klement, E. 2020. The Effect of Vaccination with Live Attenuated Neethling Lumpy Skin Disease Vaccine on Milk Production and Mortality—An Analysis of 77 Dairy Farms in Israel. Vaccines. 8(2): 324. 10.3390/vaccines8020324

4 Katsoulos, P-D. et al. 2018. Investigation on the incidence of adverse reactions, viraemia and haematological changes following field immunization of cattle using a live attenuated vaccine against lumpy skin disease. Transbound Emerg Dis. 65(1):174–185. 10.111/tbed.12646

5 Department of Employment, Economic Development and Innovation. 2011. Integrated pest management for nuisance flies in cattle feedlots. Queensland Government, Brisbane, Queensland. https://bugsforbugs.com.au/wp-content/uploads/FlyIPM_ReportDAFF.pdf

6 Abutarbush, S.M., et al. 2015. Lumpy Skin Disease in Jordan: Disease Emergence, Clinical Signs, Complications and Preliminary-associated Economic Losses. Transbound Emerg Dis. 62(5):549-54. 10.1111/tbed.12177

7 https://www.fao.org/3/y4176e/y4176e08.htm

8 Gari, G., Bonnet, P., Roger, F., Waret-Szkuta, A. 2011. Epidemiological aspects and financial impact of lumpy skin disease in Ethiopia. Prev Vet Med. 102(4): 274–283. 10.1016/j.prevetmed.2011.07.003