Australian Government
Department of Agriculture, Water and the Environment

What is the probability of a lumpy skin disease outbreak in Australia in the next 5 years?

Insights from a structured expert judgement exercise

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Lumpy skin disease (LSD) has continued to spread in the region in the past 12 months and new information continues to emerge.

To provide an updated estimate of the probability of an internationally-notifiable incursion (outbreak) of LSD in Australia in the next 5 years, a **structured expert judgement (SEJ) exercise** facilitated by the Centre of Excellence for Biosecurity Risk Analysis (CEBRA), similar to an exercise from March 2021, was repeated on 1 April 2022.

SEJ is an internationally-recognised process that has been used to obtain data on a range of **complex uncertain systems**. It provides a systematic approach that minimises individual and group cognitive biases, surfaces assumptions, and contextualises outcomes..

The exercise involved a robust 2-hour discussion, with 21 individual participants making private optimistic, pessimistic and 'most likely' projections of the probabilities, which were later aggregated.

Participants debated a variety of possible pathways of spread of the disease, including via the movement of **arthropod vectors**, the movement of **infected animals**, and the potential for **transmission via fomites**.

The results of this exercise and estimated probabilities should be interpreted and used with caution. Similar to the 2021 exercise, there were **divergent views and projections within the recent group of participants.** This is an expected and important part of the process.

Limitations of a SEJ exercise include a low diversity of the participant group, the rapidity of the exercise and the level of uncertainty expressed during the session.

The probability of an outbreak should also be considered with its consequences as part of a risk assessment. **An outbreak of LSD in Australia would be associated with substantial impacts.**

There is an estimated **3 to 4-fold increase** in the expected probability of a LSD outbreak in Australia in the following 5 years compared to a separate exercise 1 year ago

SEJ March 2021

8%

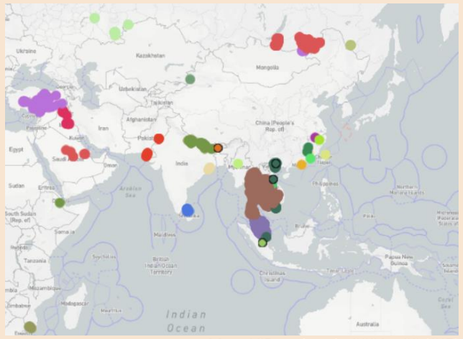
probability of an LSD outbreak in Australia in the next five years
(range: 0 – 22%)

Map: LSD outbreaks 2019 – 20 (OIE)

SEJ April 2022

28%

probability of an LSD outbreak in Australia in the next five years
(range: 4 – 56%)



Map: LSD outbreaks 2021 – 22 (OIE)

An increased perceived threat of an LSD outbreak in Australia is expected, given the ongoing disease spread in the region and the emergence of new information. The situation remains dynamic, and the threat to Australia will likely continue to evolve.

There continues to be divergent views on the probability of an outbreak. This reflects complexities and unknowns such as global and region-specific knowledge gaps about the disease, its epidemiology and competency of vector species; evolving issues like the implications of emerging virus strains; and the dynamic wider context, including environmental factors like climatic conditions, and human-driven factors such as other countries' acceptance of foreign support, their biosecurity prioritisation, and trade drivers.

What could be working in our favour?

- Australia's robust import & border controls; offshore support; & preparedness activities
- History of maintaining freedom from some other mechanically spread pathogens
- Distance for vectors to reach northern Australia & sparse cattle populations in some immediate neighbouring countries
- Sufficient viable virus needing to reach sufficient populations of susceptible animals to cause an outbreak

What could be working against our interests?

- Complex animal movements, political drivers & insufficient biosecurity prioritisation by countries in region, with spread outpacing regional controls and surveillance
- Increasing viral load in region & decreasing distance to Australia, as well as increasing international transport & a broad range of potential vectors
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- The threat of emerging strains with different transmission mechanisms & host range
- Malicious & illegal activity – e.g. illegal importation of LSD vaccines; product adulteration; bioterrorism

+ Uncertainty
- Biological factors
- Contextual factors