



Lumpy skin disease

Pip Beard

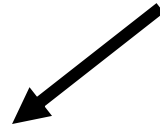
Leader, Poxvirus Research Group

Outline

- Lumpy skin disease – the facts
- Key knowledge gaps
- Time for questions



Capripoxviruses



Sheeppox virus



Goatpox virus



Lumpy skin disease virus



Share 96% nucleotide identity

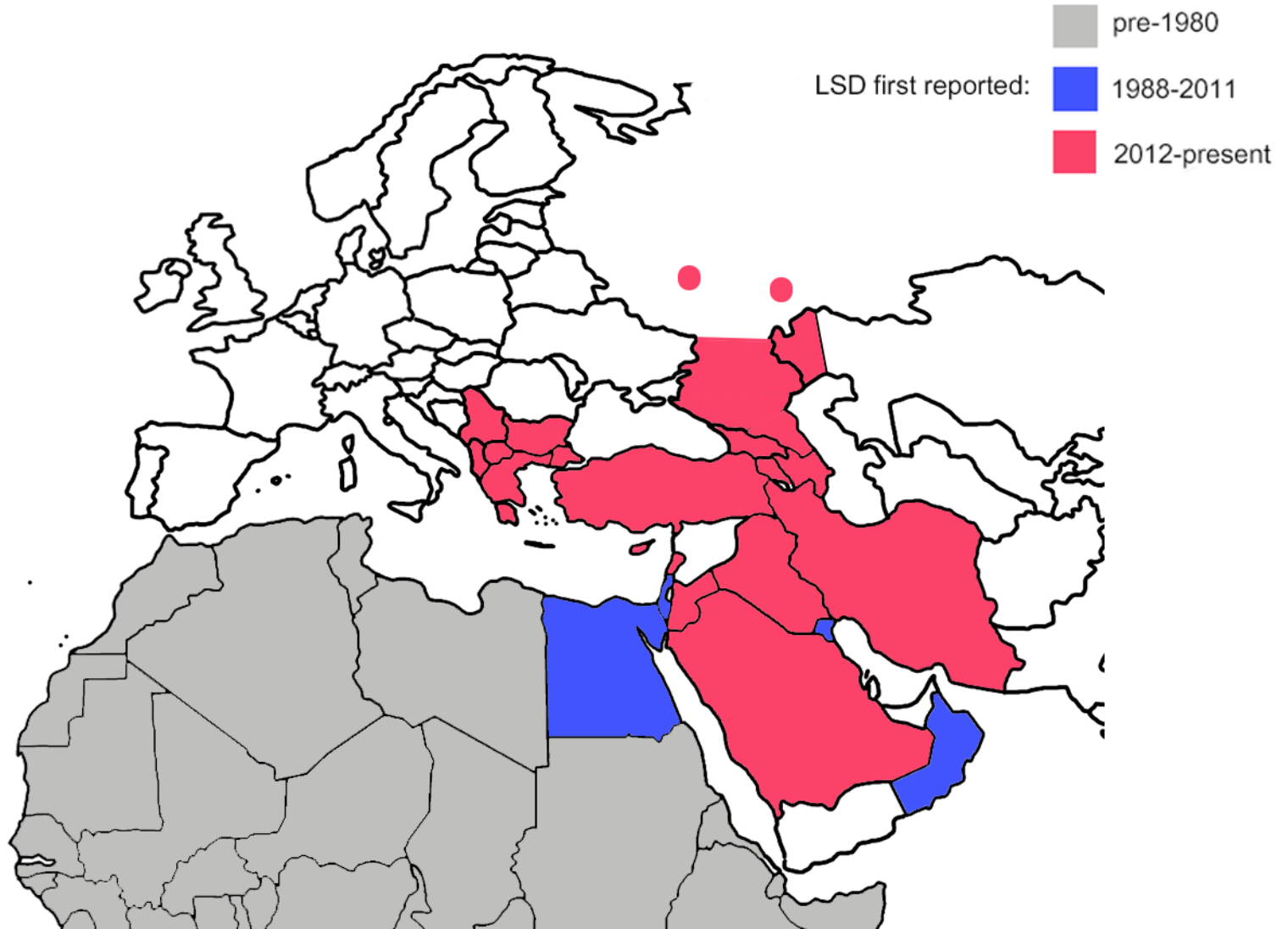
Morbidity and mortality up to 100%

Morbidity 10%
Mortality 1%

Historic spread of LSD



Recent spread of LSD





Clinical signs of LSD



- Clinical signs can be very subtle
- Subclinical infections can occur
- Acute disease only. No persistence, latency, long term carriage

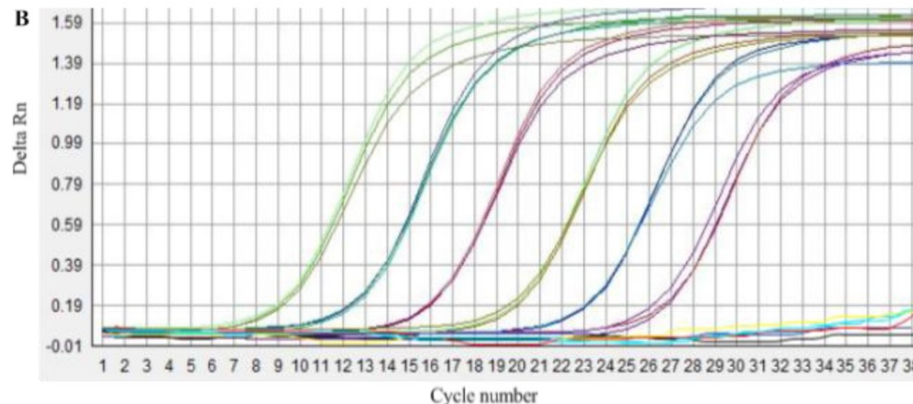
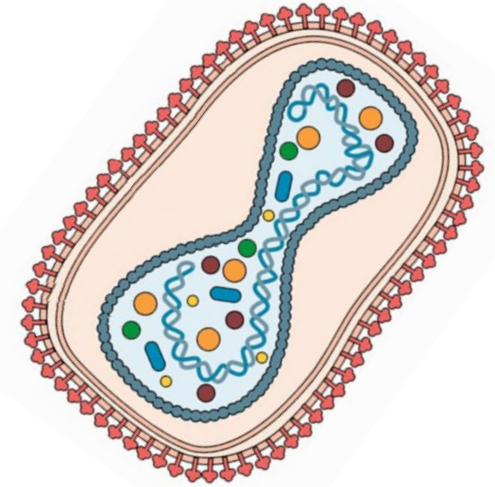
Diagnosis of LSD

1. PCR
2. Virus neutralisation test



LSDV diagnosis using PCR

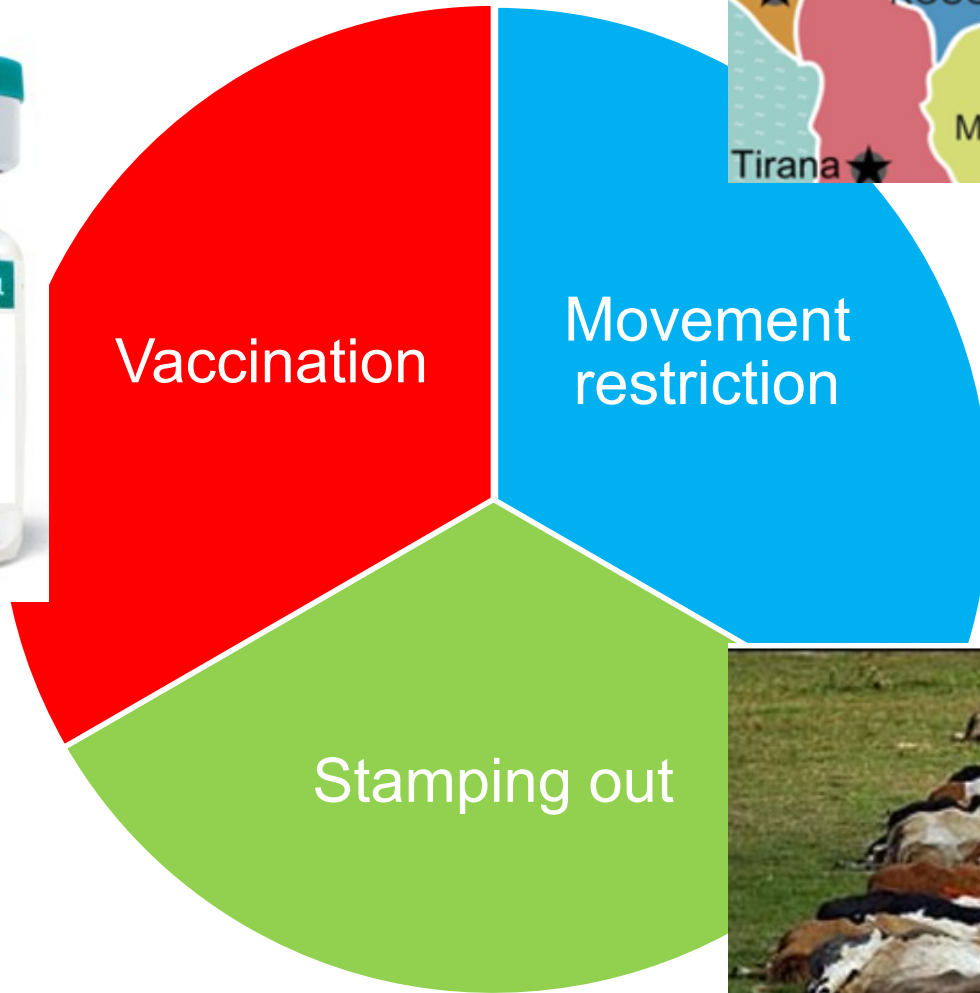
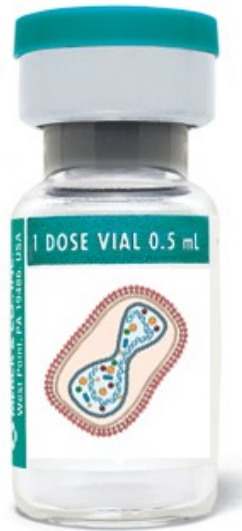
- PCR detects the DNA of the virus
- Good method to use
 - High specificity and sensitivity
- Does not detect historic infections



LSD diagnosis using serology

- There is no ELISA kit for LSD diagnosis
- Virus neutralisation test is the only validated method to detect LSD antibodies
- Can detect prior infection with LSDV

Control of LSD



EU Council Directive 92/119/EEC

Key LSD knowledge gaps

- Transmission
- Diagnosis
- Vaccines

Transmission

- Believed to be mainly vector borne





S Evros 20Aug15

N Evros 16Sep15

Xanthi 25Sep15

Kavala 01Oct15

Limnos 07Oct15

Rodopi 14Oct15

Chalkidiki 14Oct15

Chalkidiki 16Oct15

Thessaloniki 11Nov15

Initial spread of
LSD in Greece
in 2015



Leaps
Over-winter
Vaccination

- S Evros 20Aug15**
- N Evros 16Sep15**
- Xanthi 25Sep15**
- Kavala 01Oct15**
- Limnos 07Oct15**
- Rodopi 14Oct15**
- Chalkidiki 14Oct15**
- Chalkidiki 16Oct15**
- Thessaloniki 11Nov15**
- Serres 04Apr16**
- Pella 23May16**
- Kilkis 26Apr16**
- Peloponnese Jul16**
- Larisa Aug16**

Re-emergence
of LSD in
Greece in 2016



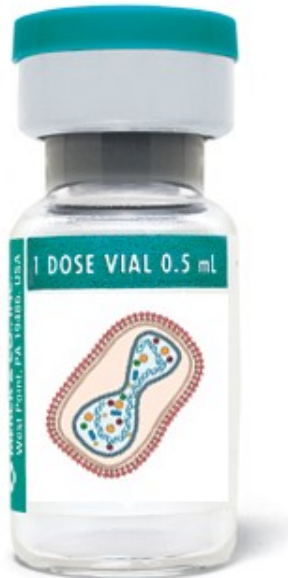
Diagnosis

- High throughput serological diagnosis is unavailable



Diagnosis

- DIVA test urgently needed



or



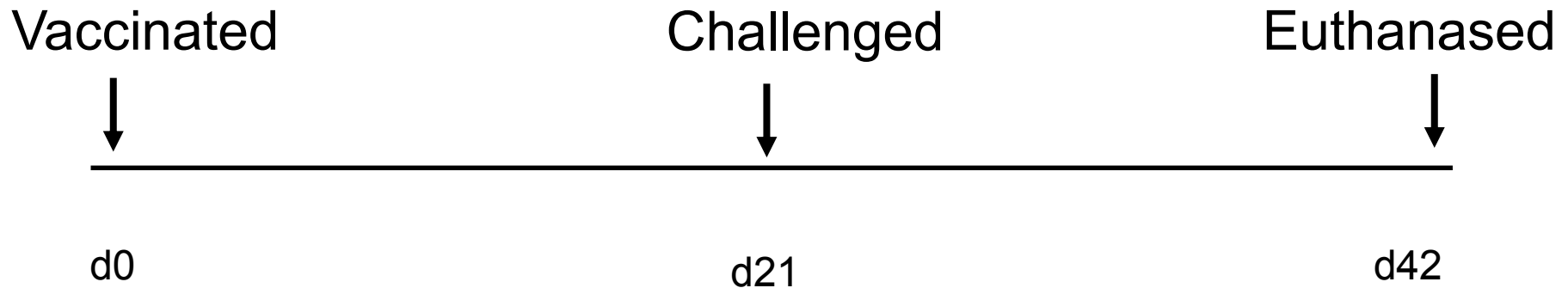
?

Vaccination

- Currently have only live attenuated LSDV strains
 - Variable efficacy and safety
 - Poorly characterised
 - Contamination?
- Not licenced for use in EU

Vaccination trials

- Compare the efficacy and safety of LSD vaccines



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Vaccination trials

- Compare the efficacy and safety of LSD vaccines
- Results so far:
 - Commercial vaccines have variable efficacy
 - Subclinical infection occurs
 - Protective immune response

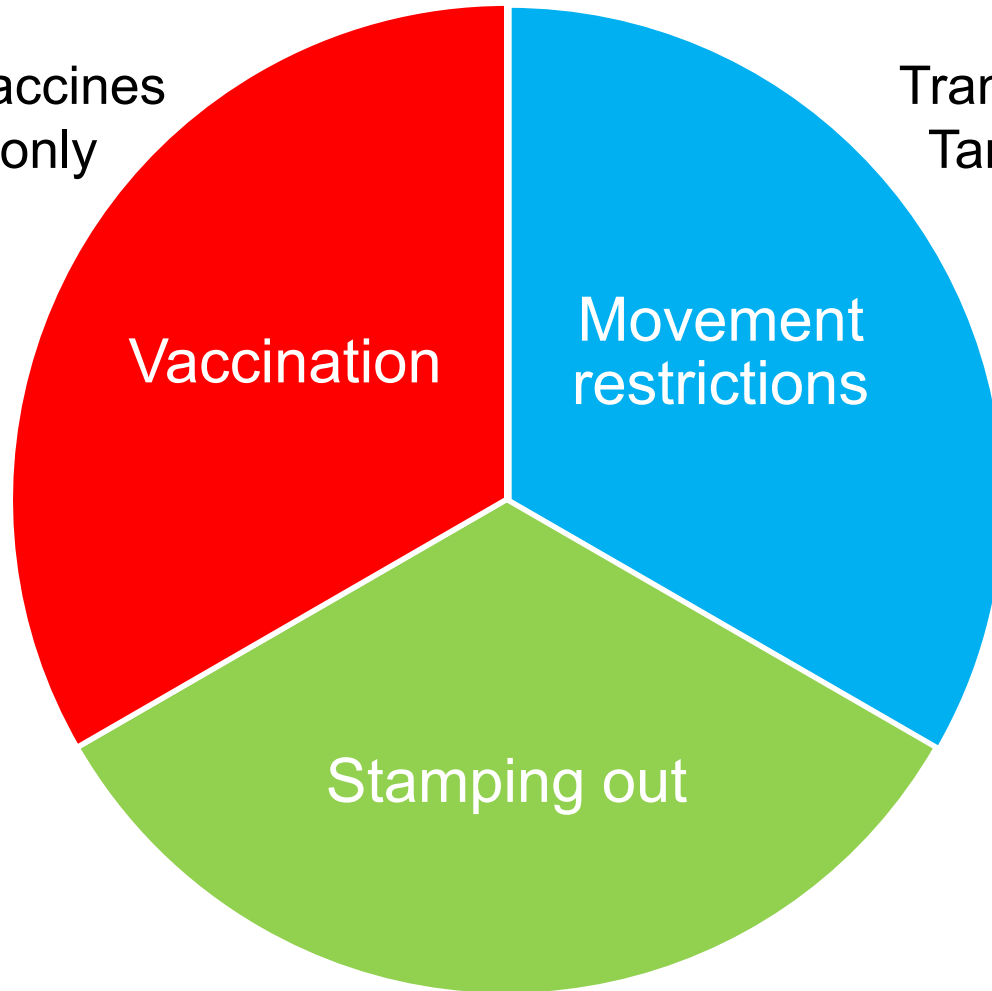
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Control Programme



No licenced vaccines
Live vaccines only
No DIVA test

Transmission?
Targeted?

Total or modified?
Economic analysis

Future plans

- Horizon 2020 funding bid “Research and approaches for emerging diseases in plants and terrestrial livestock”



Acknowledgements

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