# EFSA activities on Lumpy Skin Disease – recent and ongoing work

**Alessandro Broglia**

Animal and Plant Health Unit

EFSA

5° SGE meeting (GF TAD), Budva, Oct 2017

efsa
European Food Safety Authority

# outline

- What done so far – report 2017
- What to be done next – report 2018
  - Preliminary results

Timeline of events > requests > outputs

2013

LSD spread in Middle East, Turkey

EC Mandate for EFSA SO Nov 2013

EFSA Scientific opinion Jan 2015

2015

LSD spread to Cyprus, Greece

Communication from Bulgaria > EFSA Dec 2015

EFSA/DG SANTE Workshop - May 2016

2016-2017

EC Mandate for urgent advice Jun 2016

EFSA Statement Jul 2016

Further spread to Bulgaria, neighbouring countries

EC Request for scientific and technical assistance - Aug 2016
Data collection and analysis

EFSA technical report 2017

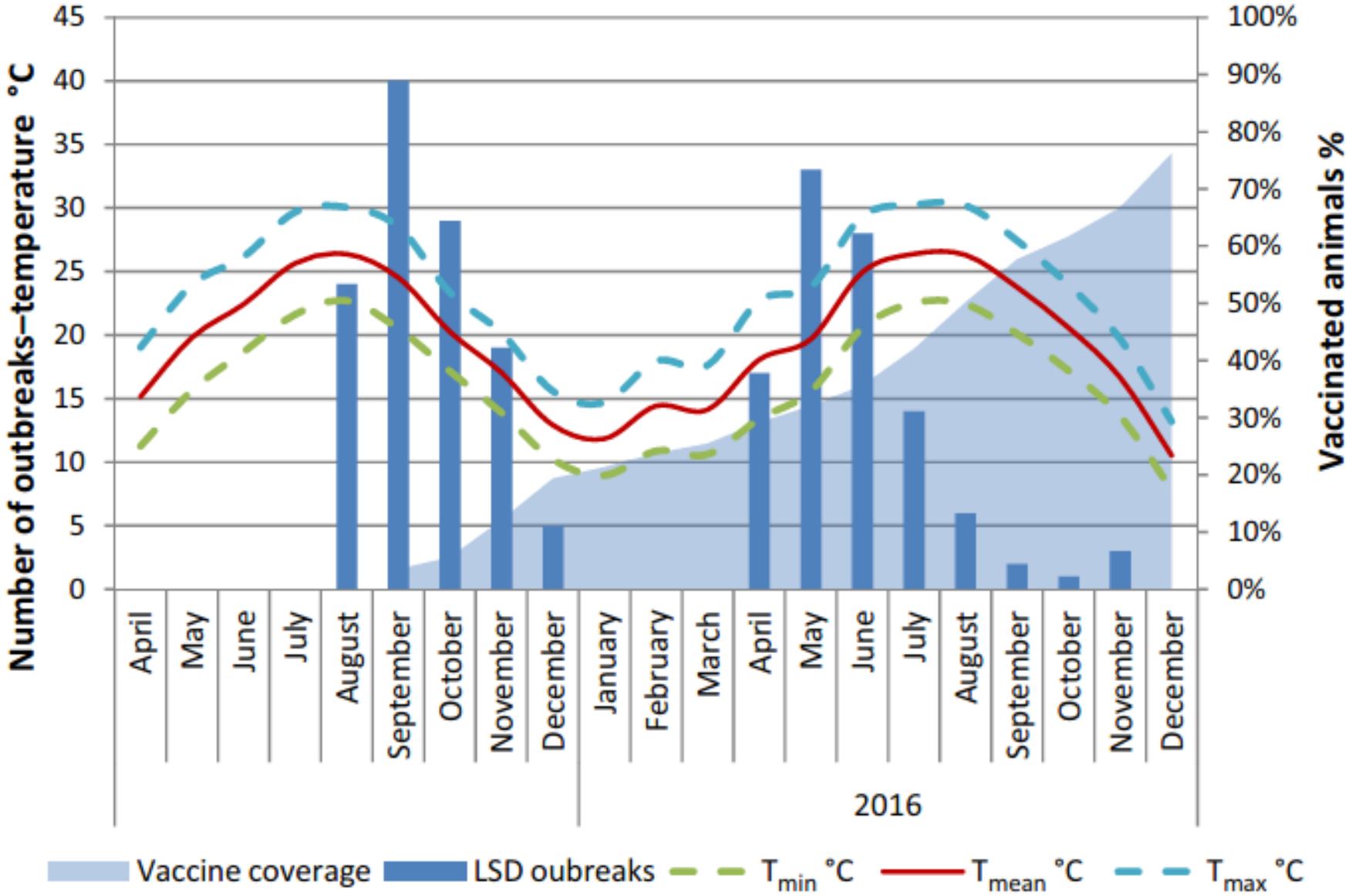
EFSA technical report 2018

# ART. 31 MANDATE: 1° REPORT PUBLISHED, MARCH 2017

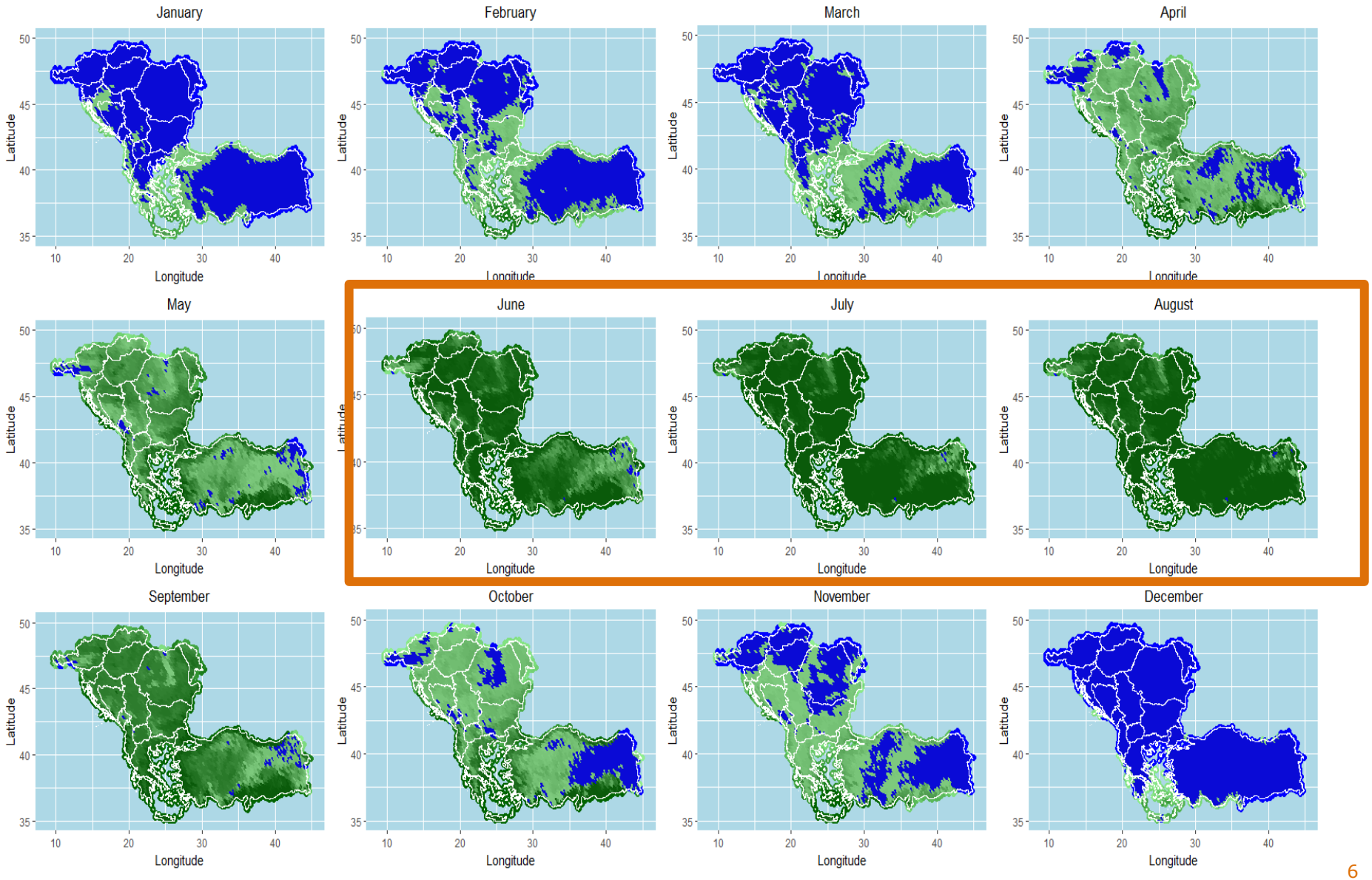
- Overview of LSD situation in affected countries in Europe
- Spatial and temporal dynamics of LSD outbreaks in 2015–2016 in the Balkans
- Speed of propagation of LSD
- Temporal dynamics of outbreaks related to vaccination coverage and temperatures
- Vaccination effectiveness: the case study of Albania
- Potential adverse effects of vaccination – the case of Croatia
- Climatic influence and vectors
- Indications for the survey and collection of potential LSDV vectors

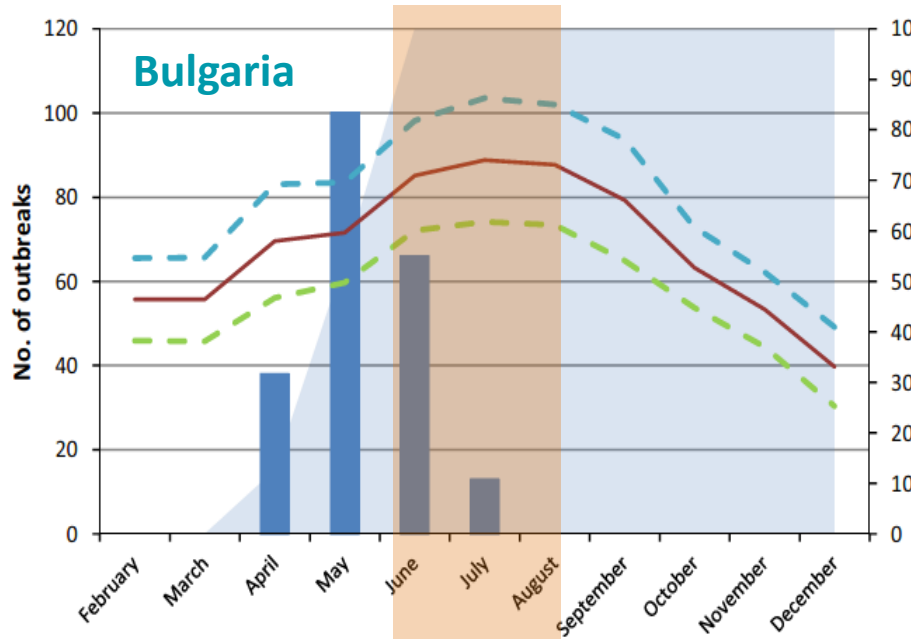
http://onlinelibrary.wiley.com/doi/10.2903/j.efsa.2017.4773/epdf

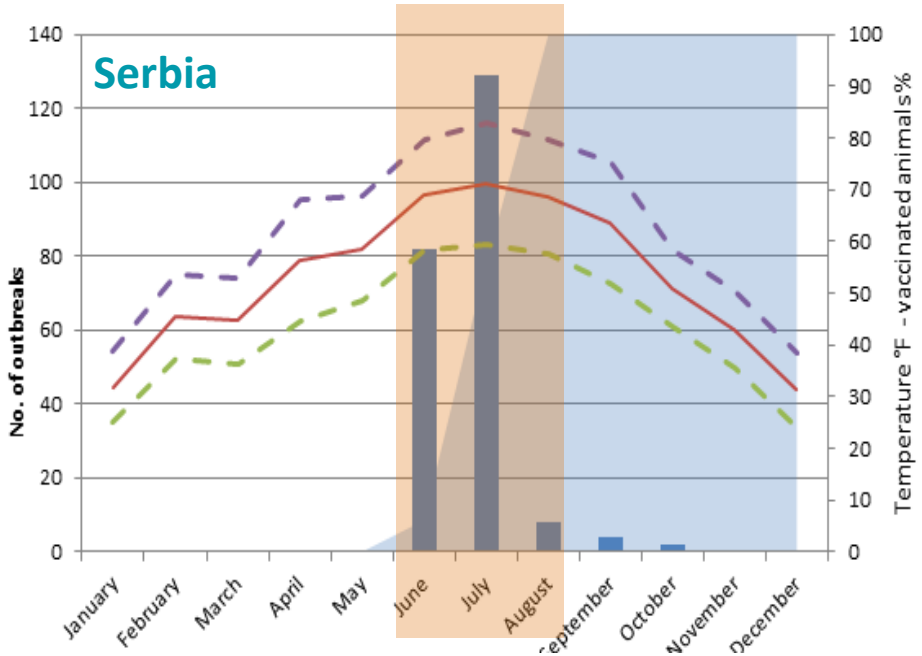
# Seasonal epidemic waves: Greece

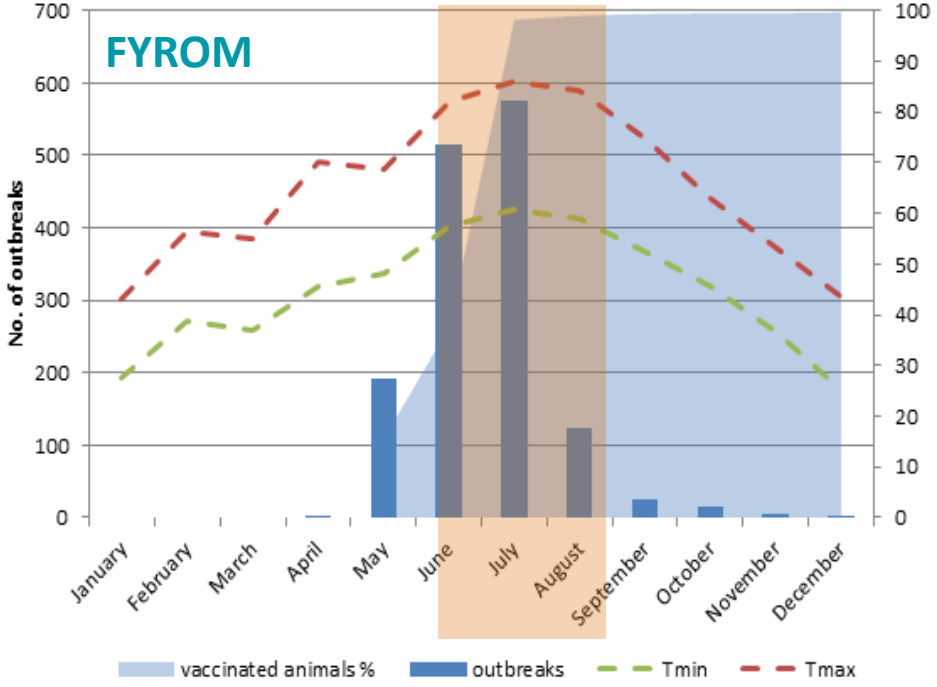


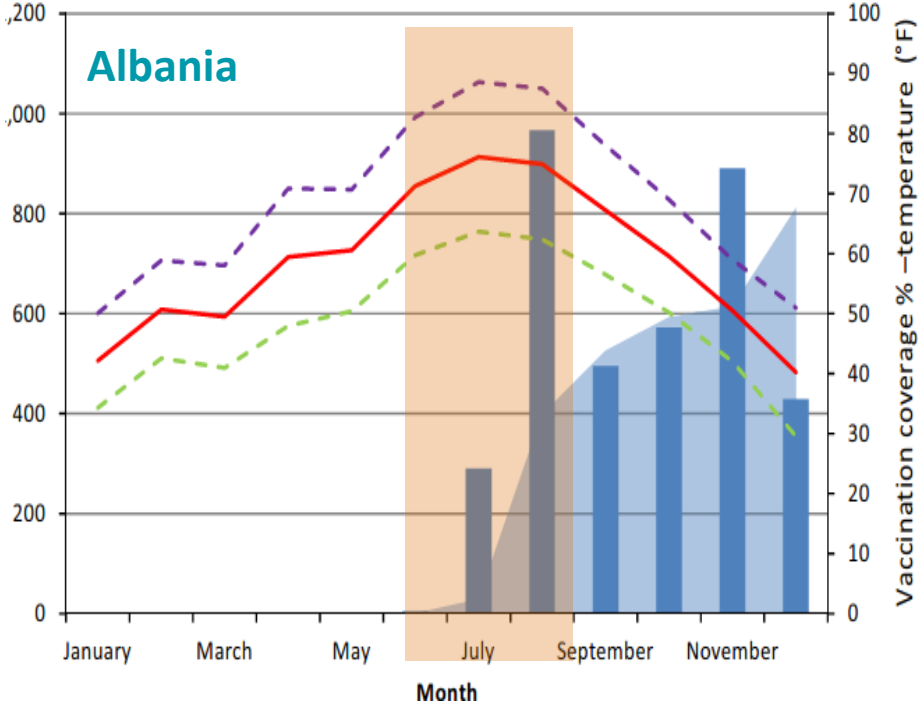
# Opportunity map for vector survival




Bulgaria
No. of outbreaks
February
March
April
May
June
July
August
September
October
November
December


Serbia
No. of outbreaks
Temperature °F - vaccinated animals %
January
February
March
April
May
June
July
August
October
November
December

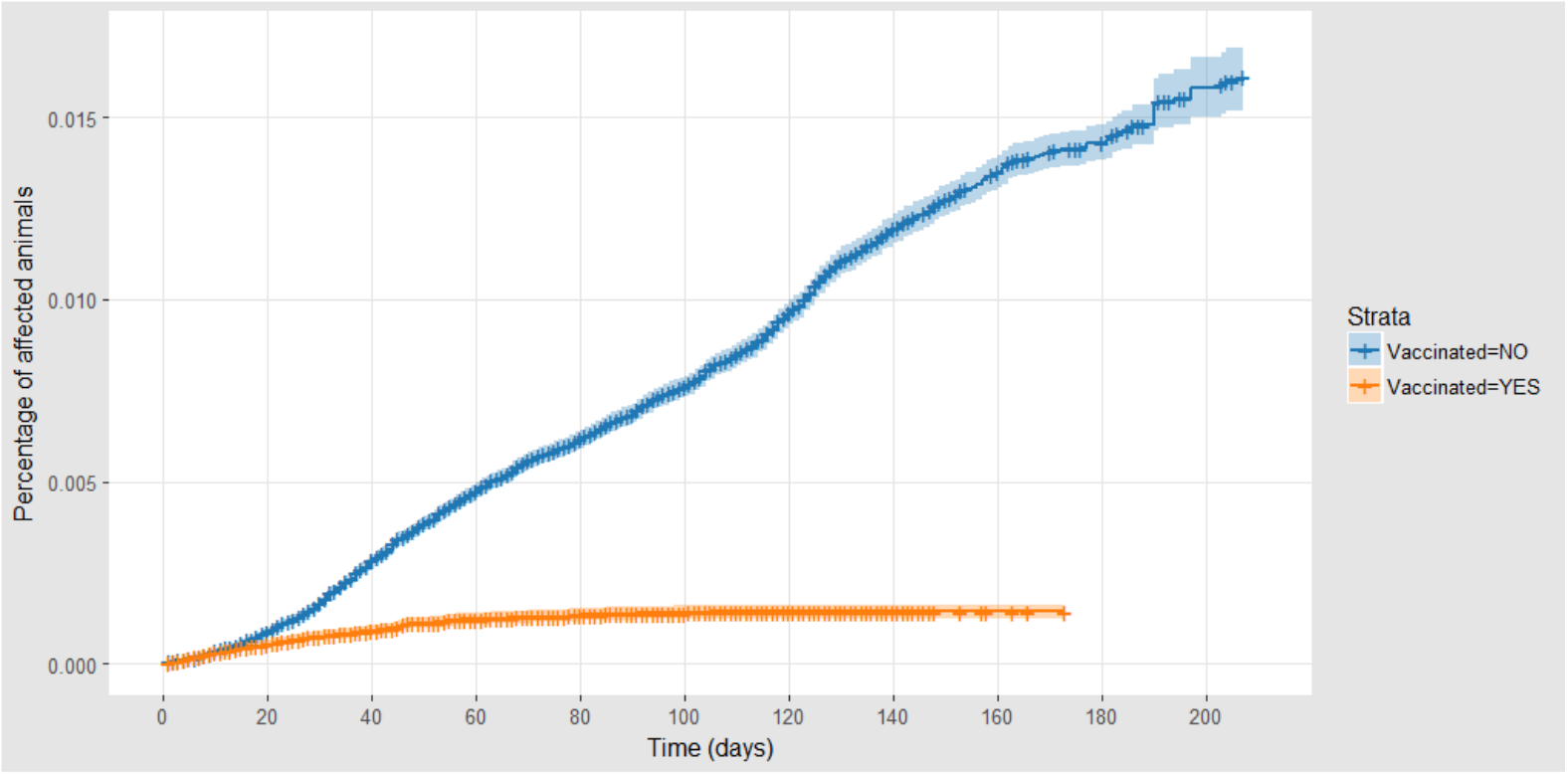

FYROM
No. of outbreaks
January
February
March
April
May
June
July
August
September
October
November
December
vaccinated animals %
outbreaks
Tmin
Tmax

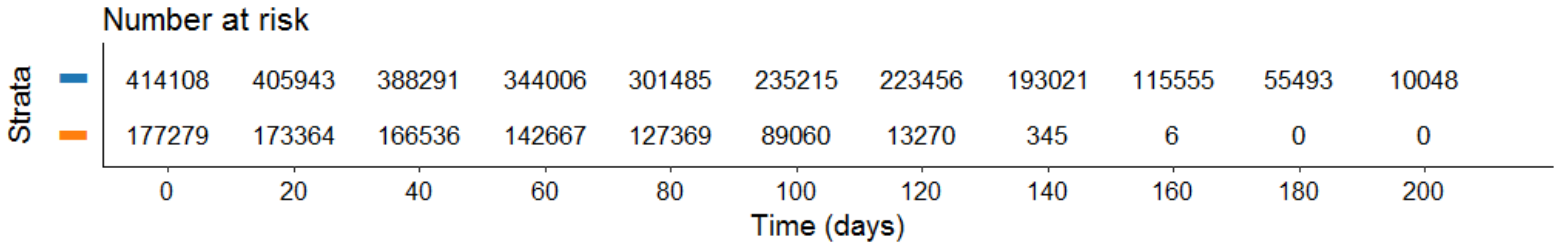

Albania
Vaccination coverage % –temperature (°F)
January
March
May
July
September
November
Month

# Vaccination effectiveness: Albania

## District level: 70.3% (CI: 66.2 – 74.3)

77.4% (CI: 74.2;80.3) weighted per number of animals per farm



# Second report – by Jan 2018

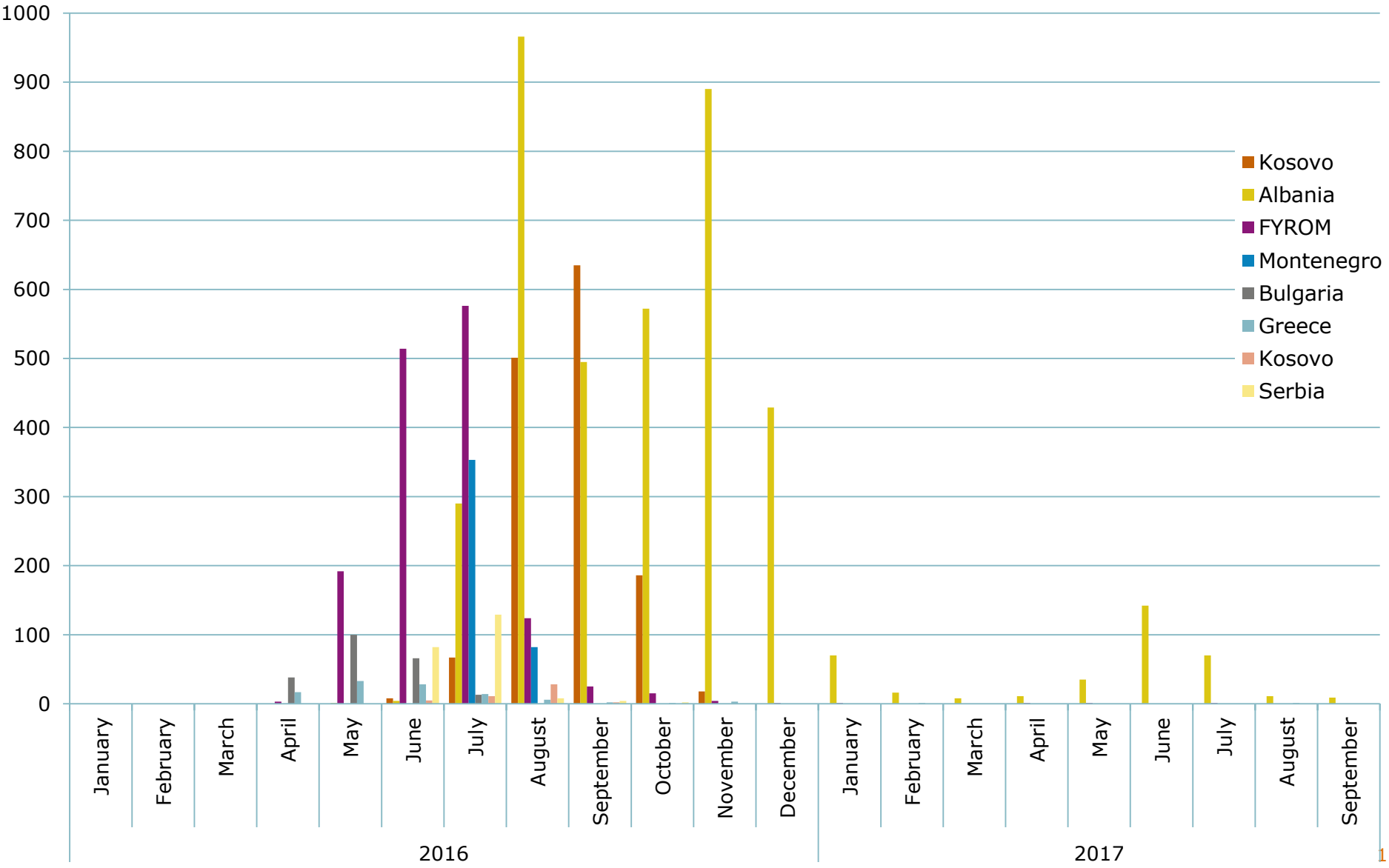
Possible elements:

- Update about epidemiological situation in 2017
- Update about vaccination campaign and evaluation of vaccination effectiveness in other countries
- Update the kernel-based spread model between farms and possible use
    - Within-farm spread based on outbreaks in 2017
- Adverse effect in 2017 in Croatia
- update on advances on diagnostics tools
- indications on possible surveillance system for countries at risk

**discussed at WG meeting 18th October, Montenegro**

# LSD epidemics in Europe, Apr 2016- Aug 2017

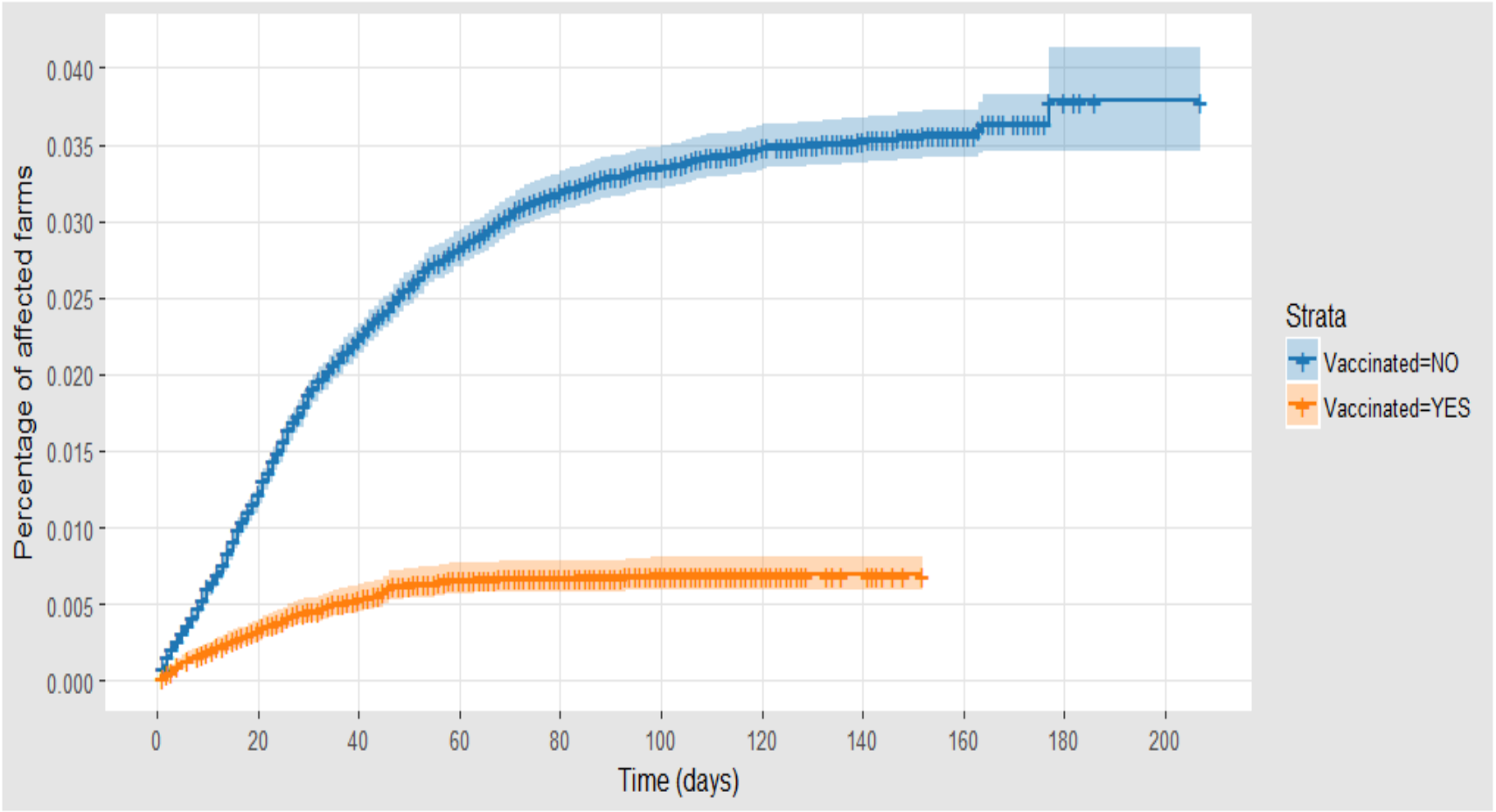
# Monthly outbreaks - 2016-2017



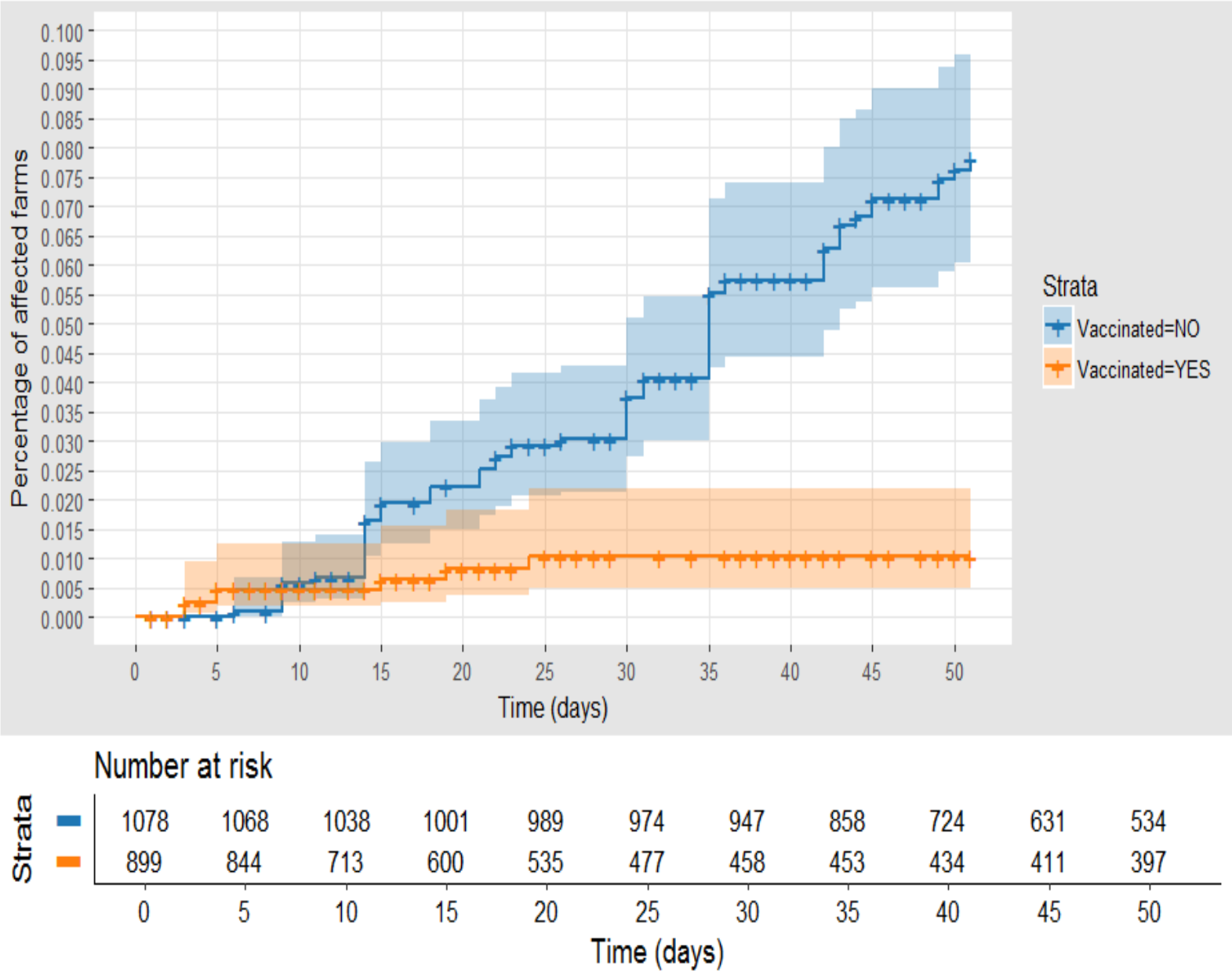
# Preliminary results

# Vaccination effectiveness

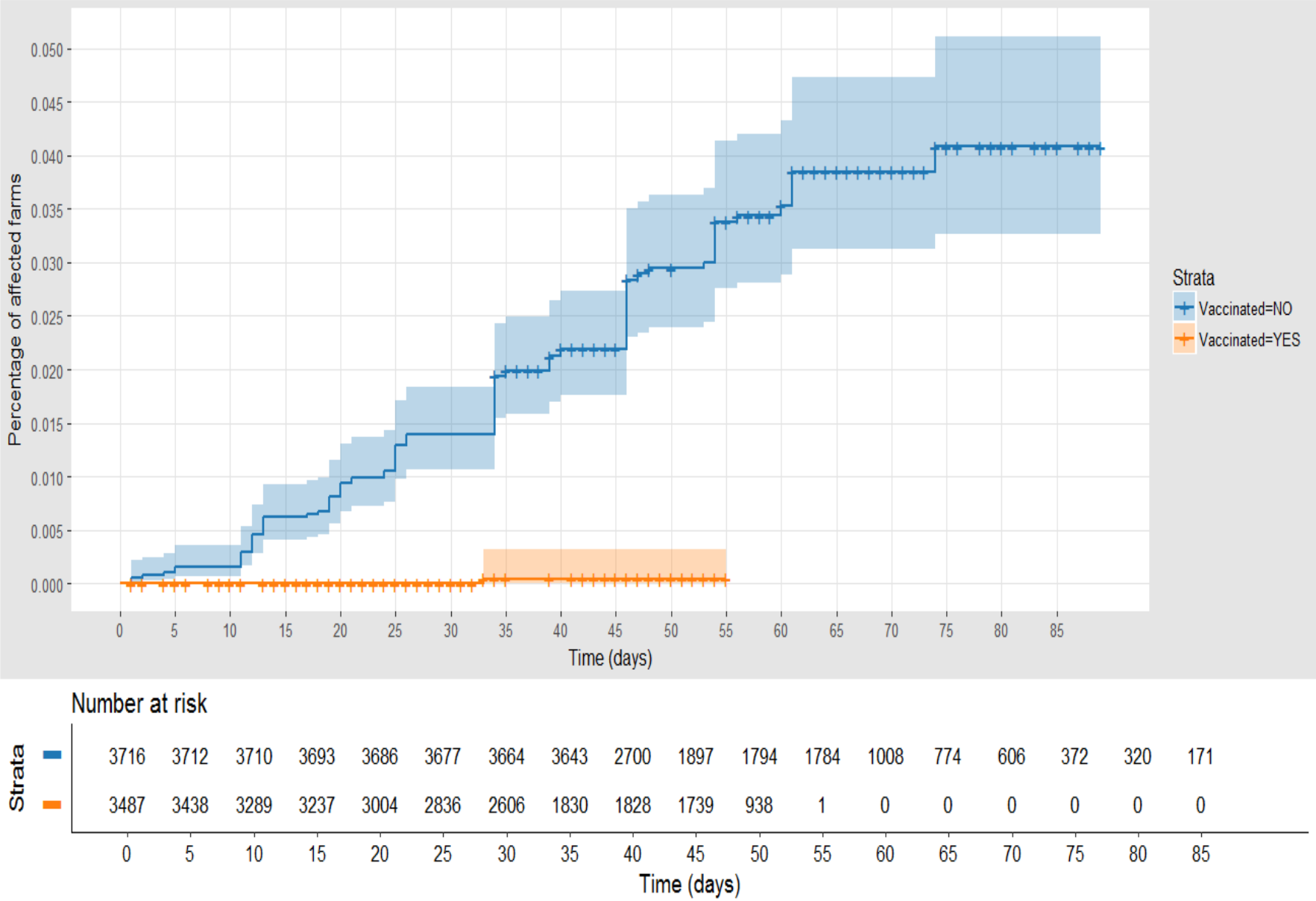
# ALBANIA (Village: 79.0% CI: 75.3 -81.8 )



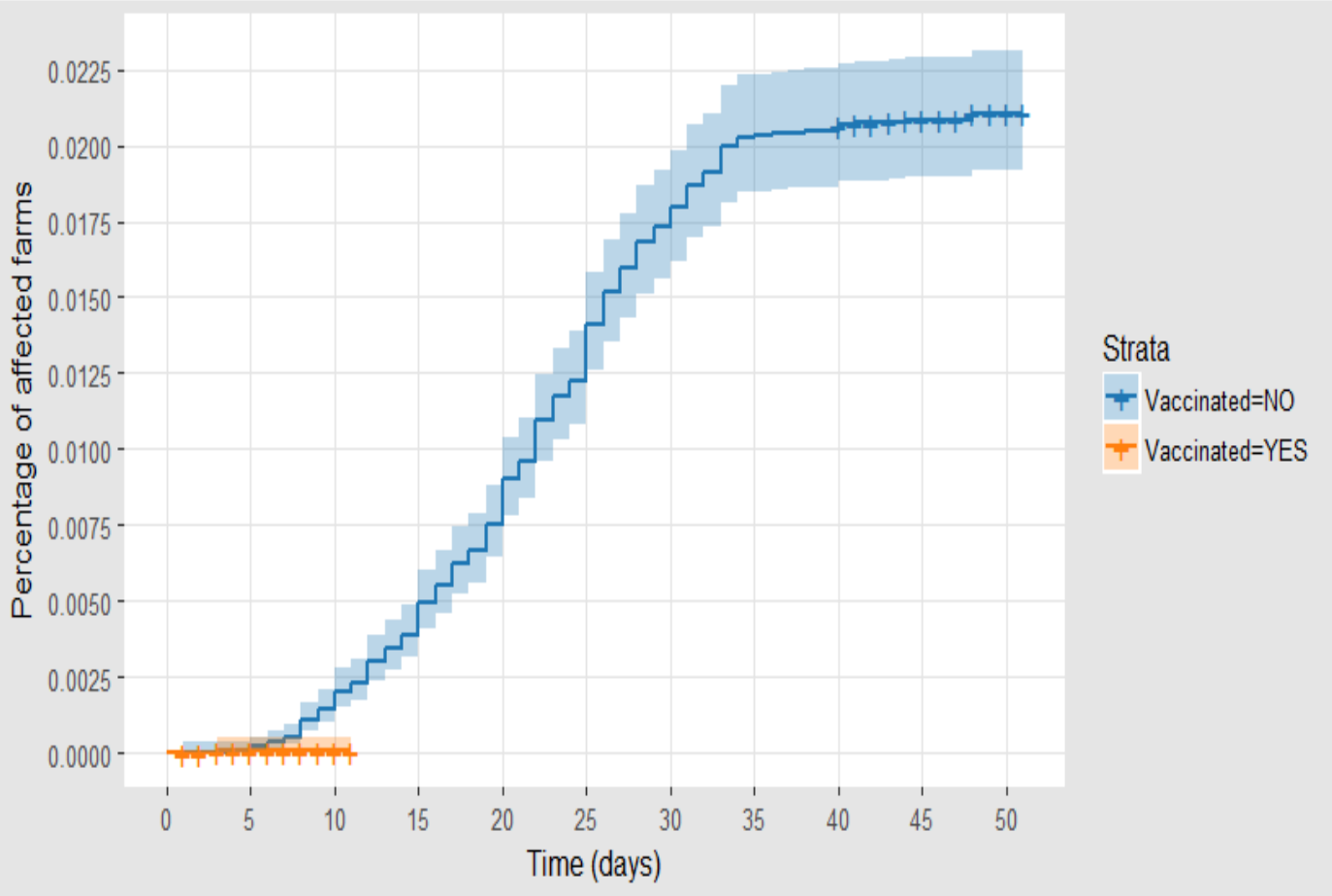
# GREECE (83% CI: 63.1 – 92.2)

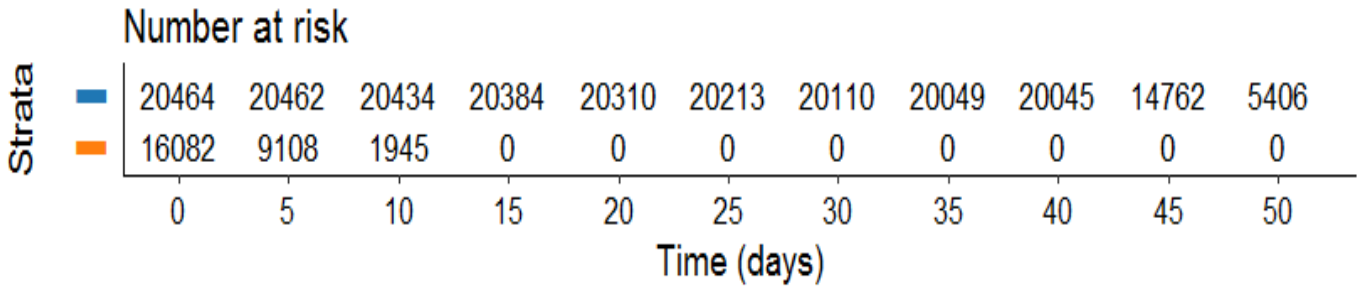


# BULGARIA (98.6% CI: 89.9 – 99.8)

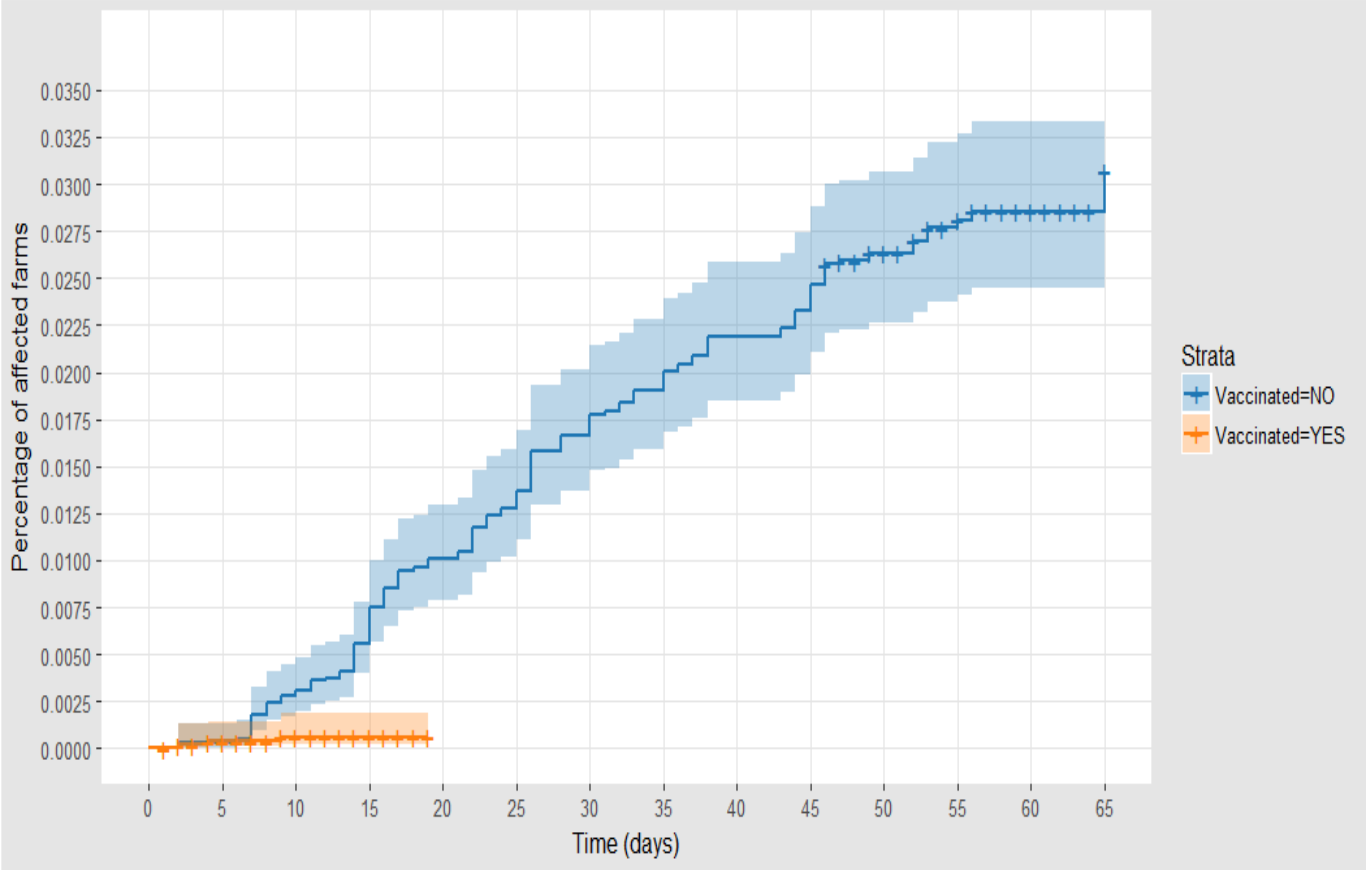


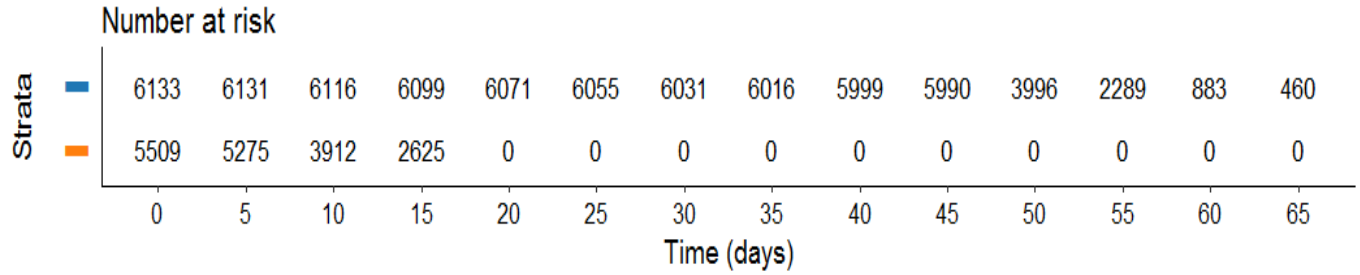
# MONTENEGRO (89.3% CI: 21.7 – 98.5)



# SERBIA (90.5% CI: 69.5 – 97.0)



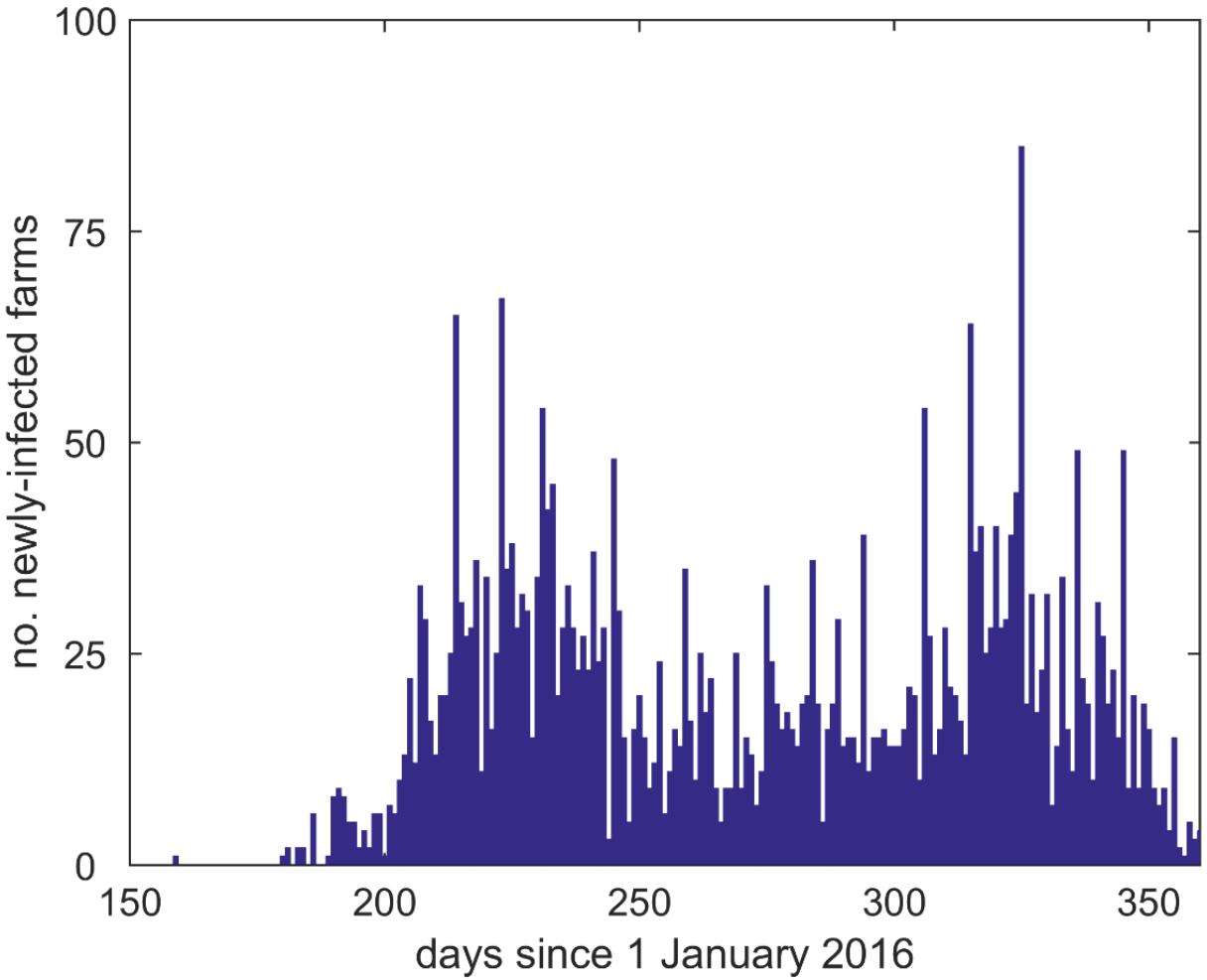



# Preliminary results

# Mathematical model for LSD spread

# LSDV in Albania

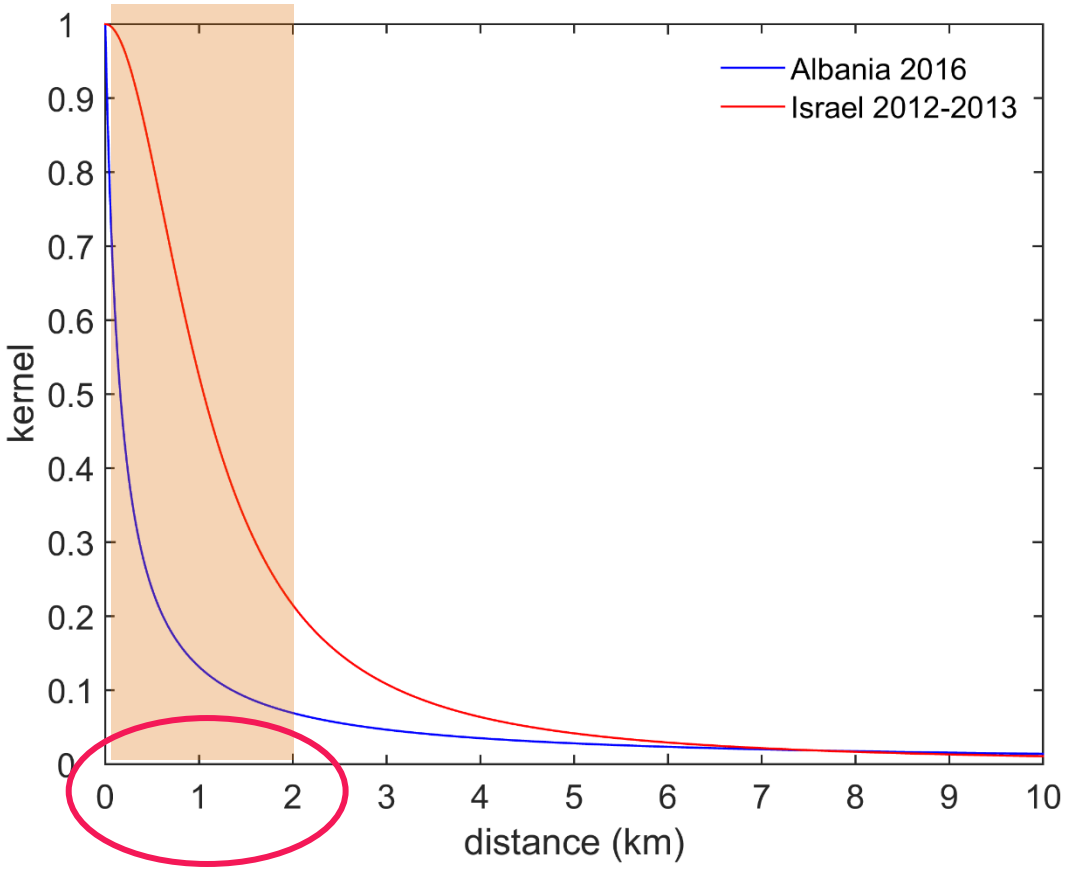
- farm-level incidence



# Models for LSD spread in Albania

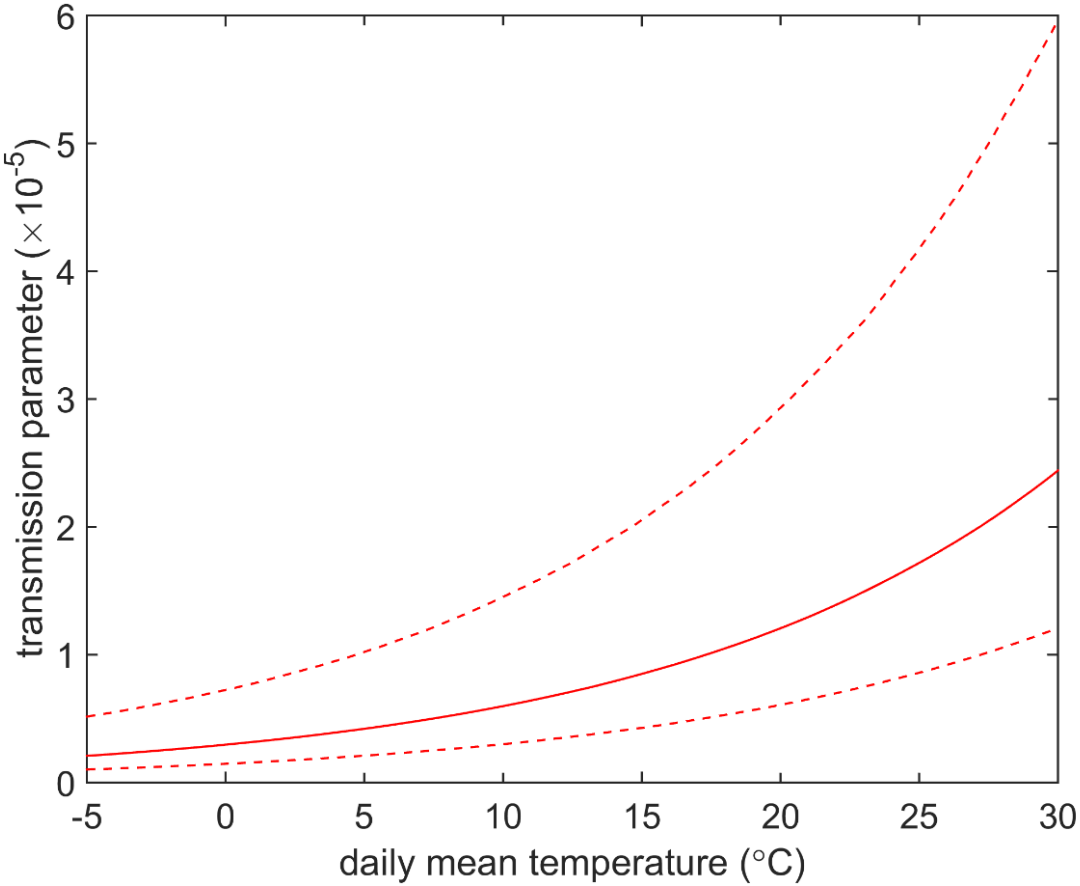
- Comparison of best-fit kernels estimated for LSDV outbreaks in Israel and Albania

$$\lambda(x_{DR},t) = h_0 \times N_R \times N_D \times K(x_{DR})$$



# Transmission parameter

- Incorporated in village-level model
- Temperature dependent



# Preliminary conclusions

- In 2015-2016, > 7,600 LSD outbreaks; 12,800 affected animals
- In 2017 > only in Albania (very few in Greece and FYROM), 379 outbreaks, 843 affected animals
- Most outbreaks between May and August
- LSD spread speed mostly 1-2 km/day, up to 10-20 km
- Vaccination effectiveness : 70-99%

# Acknowledgements


- Simon Gubbins, Pirbright Institute, UK
- Eyal Klement, Koret School of Vet. Medicine , Israel
- Arjan Stegeman, Utrecht University, NL
- Josè Cortiñas, Andrey Gogin, Lisa Kohnle - EFSA
- EFSA Panel on Animal Health and Welfare
- Dimitrios Dilaveris, F. Reviriego - EC
- Ledi Pite – Ministry Agriculture, Albania
- Aleksandra Miteva, Tsviatko Alexandrov - BFSA, Bulgaria
- Sotiria-Eleni Antoniou and Chrysoula Dile - Min Rural Dev &Food, Greece
- Srgjan Meshterovikj - FVA, FYROM
- Bafti Murati, FVA, Kosovo
- Drago Marojevic – Ministry Agriculture, Montenegro
- Tatjana Labus - Ministry Agriculture, Serbia
- Brigita Hengl – FSA; Ivica Sucec -Ministry Agriculture, Croatia
- Esra Satir - Pendik Veterinary Institute, Turkey

# Thank you for your attention!

EFSA outputs on
lumpy skin disease at:

https://www.efsa.europa.eu/en/topics/topic/lumpy-skin-disease

Follow us on Twitter
@efsa_eu

Subscribe to
www.efsa.europa.eu/en/news/newsletters
www.efsa.europa.eu/en/rss