SHEEP AND GOAT POX: VACCINES AND VACCINATION STRATEGIES

Alessandro Broglia
Animal Health and Welfare Team
BIOHAW Unit

EUROPEAN FOOD SAFETY AUTHORITY

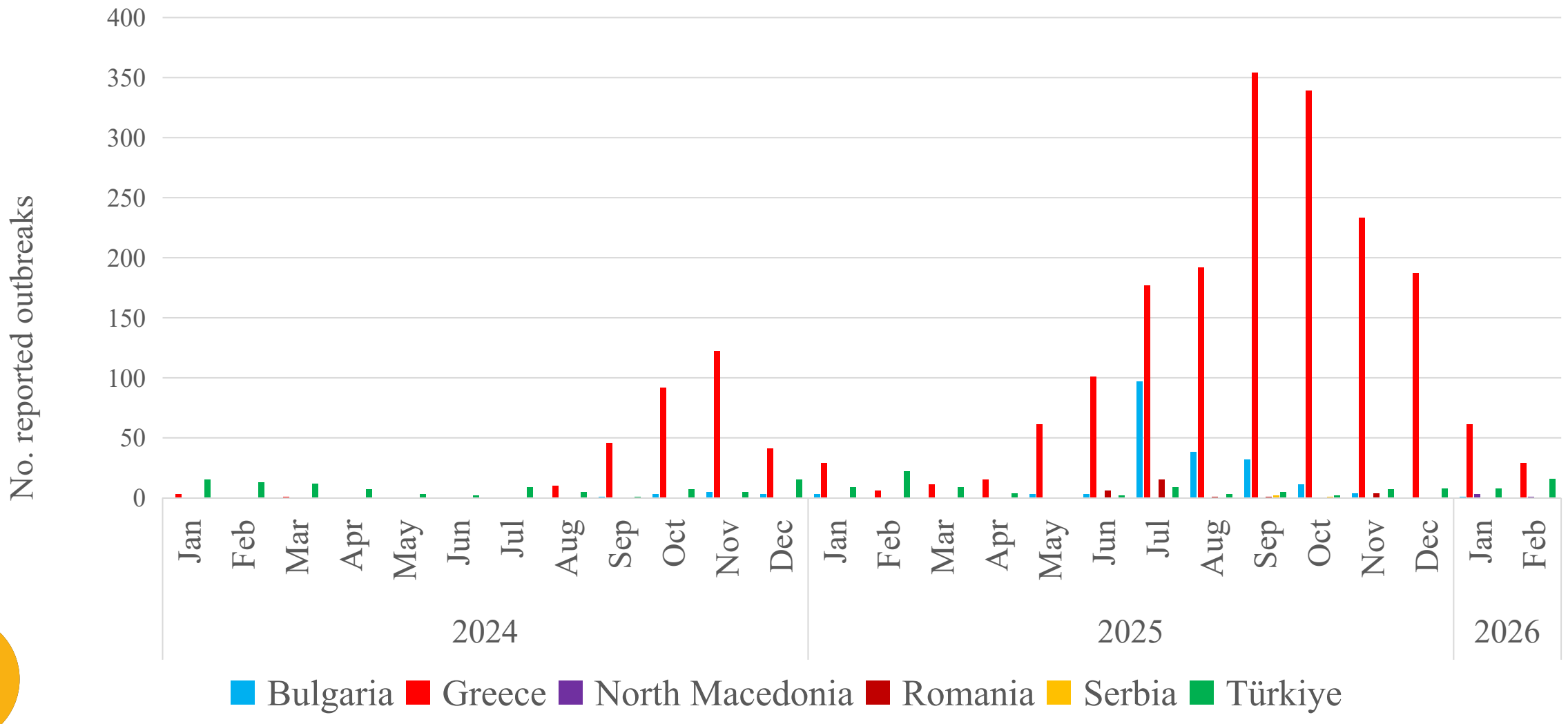
OUTLINE

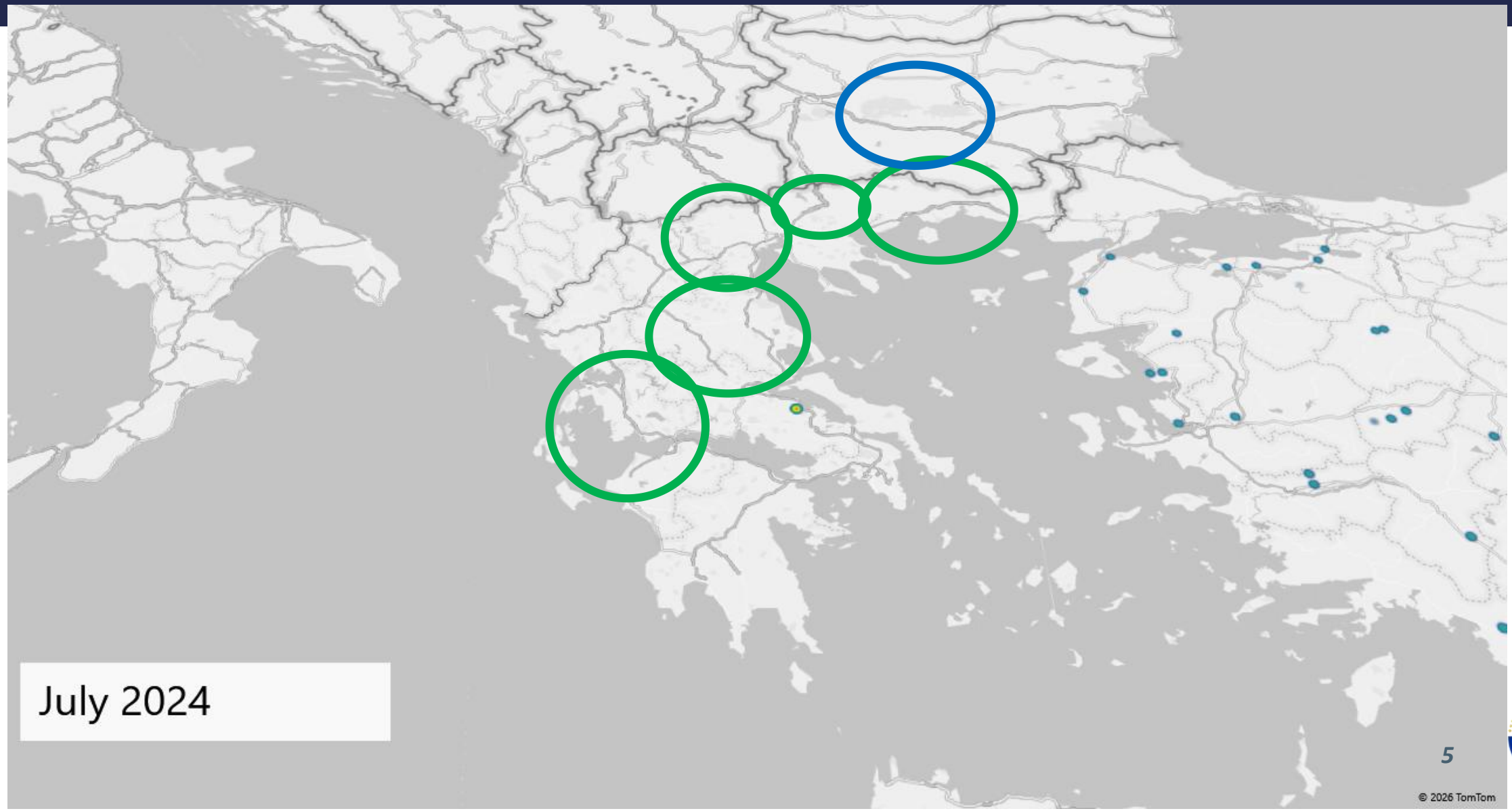
- **Effectiveness and safety of available vaccines against sheep and goat pox**
- **Vaccination strategies to control and eliminate sheep and goat pox**

VACCINES AGAINST SGP

- live attenuated vaccines >> highest and most consistent protection on sheep and goats
    - efficacy commonly reaching 80–100%
    - generally safe;
- Ad hoc experiments by EURL>>
    - sheep pox vaccines (RM-65, Romania, Bakirköy) effectively (100%) prevented mortality
    - strongly reduced morbidity (79-100%)
    - strongly reduced viral replication and shedding

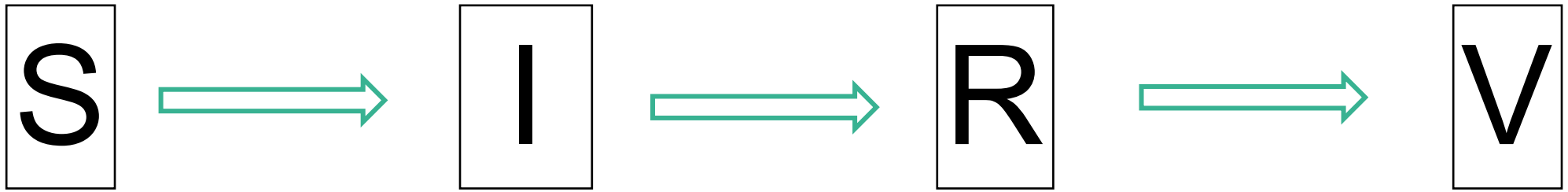
EPIDEMIC CURVE – REPORTED OUTBREAKS (ADIS UP TO 3 MARCH)




July 2024
© 2026 TomTom

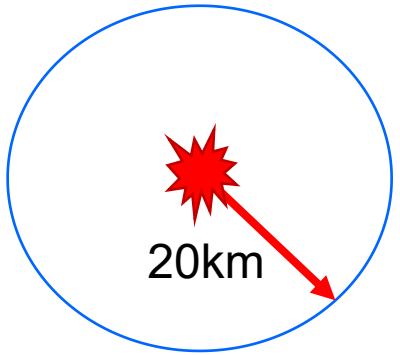
MODELLING THE SPREAD AND SIMULATE CONTROL STRATEGIES

Four compartments: Susceptible, Infected, Recovered, Vaccinated



Outbreak duration (infectiousness):

- **15 days**: rapid detection and culling
- **30 days**: normal
- **60 days** : no culling
- Transmission truncated at 20 km from infected farms (movement restriction) Y/N

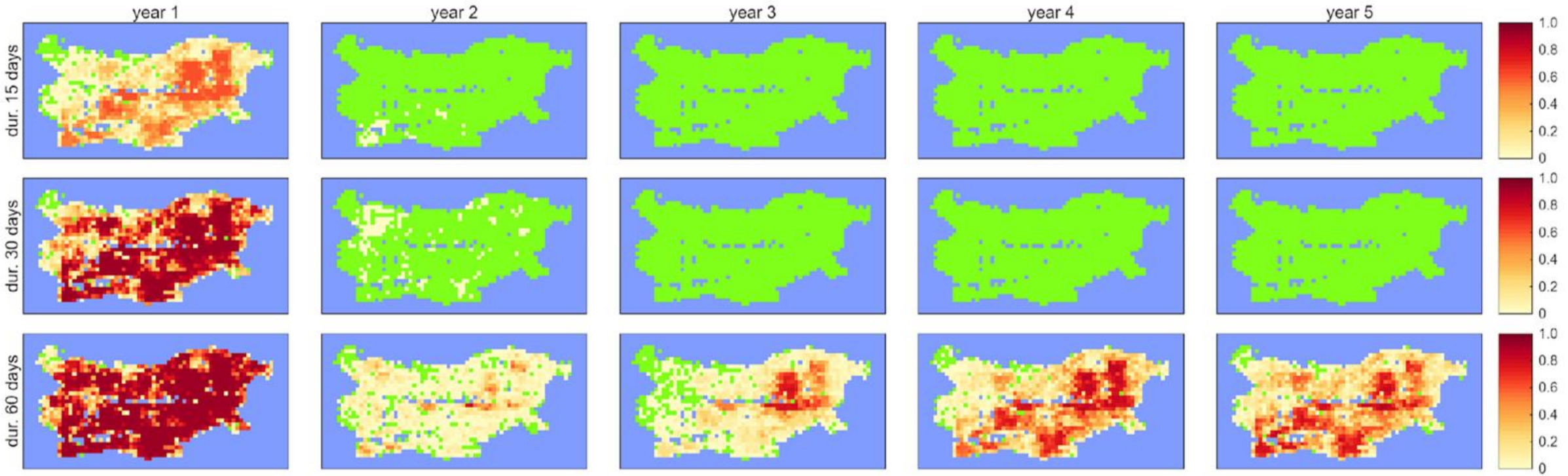


- V effectiveness: 95%
- all animals on farm vaccinated
- Immunity duration: 1 year unless revaccinated
- V start 90 days after virus intro
- 60 days for completion
- Regional vaccination vs. country-wide vaccination

Detection & culling: rapid (15 d); normal (30d) ; no culling (60 d)

Considering different **outbreak duration**: **incubation** period (10 days) + **time between detection and culling (5 days) :**

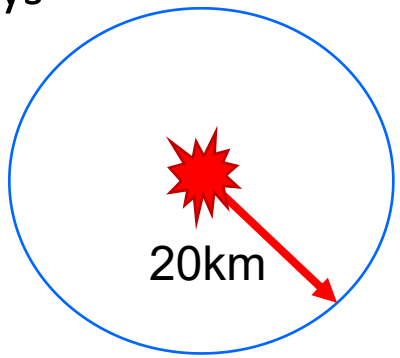
>> 15 days (1 incubation period) , 30 days (2 incubation period), 60 days (no culling)

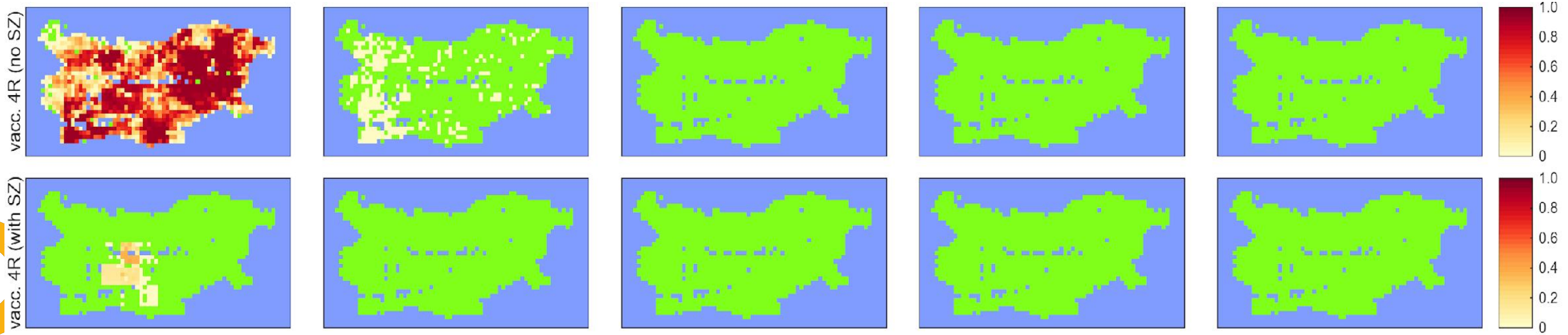


VACCINATION IN THE AFFECTED REGIONS ONLY

With and without 20 km spread containment

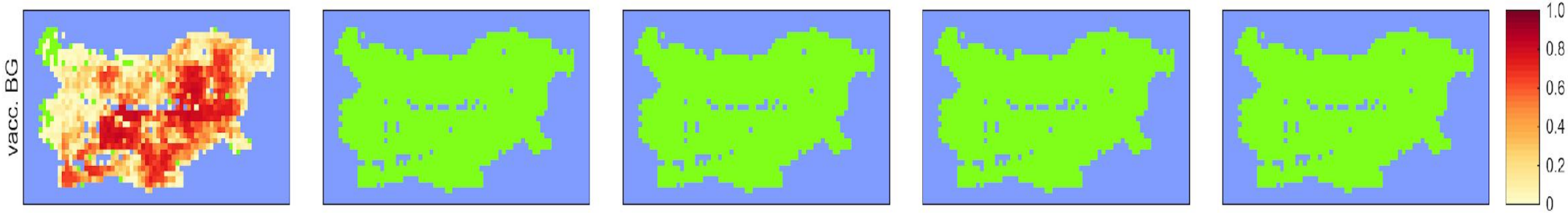
Outbreak duration 30 days





VACCINATION IN THE WHOLE COUNTRY

- without spread containment
- Outbreak duration 30 days



CONCLUSIONS BASED ON MODEL (BULGARIA)

- Based on the model, rapid detection and culling within ~30 days can contain SGP outbreaks within 1–2 years.
- Limiting vaccination to the initially affected regions risks viral escape unless strict 20-km movement controls are enforced.
- Nationwide vaccination strengthens containment and accelerates eradication compared with test & culling alone.
- A combined strategy—vaccination, early detection, rapid culling, and movement restrictions—offers the fastest and most reliable path to SGP elimination.

CONCLUSIONS (GREECE)

- Greece's wide-ranging, multi-cluster SGP epidemics indicate the need for strengthened control measures.
- Vaccination should prioritize affected regions, with nationwide vaccination considered.
- larger epidemic scale in Greece >>> Bulgaria's findings apply as a minimum requirement.
- High-risk neighboring countries may warrant assessment of preventive vaccination campaigns.

THANK YOU FOR YOUR ATTENTION

Special thanks to:

- General Directorate of Veterinary Services, Greek Ministry of Rural Development and Food
- Animal Health Department, Animal Health, Identification and Welfare Directorate, Bulgarian Food Safety Agency
- EURL on Capripoxviruses
- EFSA WG
- EC

EFSA report on sheep and goat pox vaccination:

https://www.efsa.europa.eu/en/efsajournal/pub/9928